Treasure Land

A Story.

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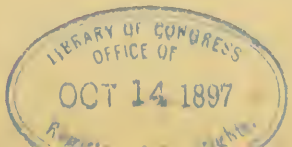
TREASURE LAND

A STORY

VOL. I

PUBLISHED BY THE
ARIZONA ADVANCEMENT COMPANY
TUCSON, ARIZONA
1897



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1897.

TREASURES OF HEALTH

AND....

TREASURES OF WEALTH.

TO THE READER:

It is said of an old writer of romance, that he set the church bells ringing merely because he had found a name for one of his heroes, and we felt equally joyous when we found a title for our book. It is one that suits it admirably, for it is full of gems of fact and fancy, and points the way to bounteous stores of treasures of health and wealth that are to be had for the seeking. As the ignorant Turk is said to preserve every scrap of writing that comes in his way, because the name of God may be written upon it, so do thou, O Reader, with this book, for there may be hope of life or a life of hope in it for some one who shall see it.

We make no apology for our book: it is the best we can give under the circumstances, and is really worth twice as much to the reader as the latest novel.

We claim no more originality than does the artist who transfers his perceptions of natural beauty to his canvas, and while we court no criticism, we do not fear it. We only ask of those, who are always ready to decry home talent, that, THEY BUY A COPY TO CRITICISE.

We thank the many friends who have kindly given us their advice and assistance in launching this venture, and in their generous approval we shall find our greatest satisfaction.

THE PUBLISHERS.

Tucson, Arizona, July, 1897.

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Where and What

is this Treasure Land?

Where the ruddy Colorado rushes onward to the sea;
Where the Gila's seething waters sweep along right merrily:
Where the canyon's mighty fissure, and the rolling valleys lie:
Where the kisses of the zephyrs make the swaying forests sigh—
There lies this Treasure Land beneath a sunny southern sky!
And on her fruitful bosom, with tender passions rife,
Lie treasures for the seeking, and the elixir of life.

Where and What Is It?

Some time in the near future an effort will be made to annex the United States to Arizona, and in view of this political amalgamation, some general information respecting it will prove interesting.

If the reader will refer to the most accessible geography, he will find the following description, or words to the same effect:

"Arizona is bounded on the east, north and west by the United States of America, on the south by the Republic of Mexico, above by the serenest of skies and beneath by inexhaustible deposits of mineral, and a soil more fertile than the valley of the Nile."

We may not follow the book precisely, as we quote from memory, but being on the spot, with the facts before us, we are probably nearer the truth than the book is.

"The surface consists of elevated table-lands broken by lofty mountains and interspersed by valleys, many of which are intersected by irrigating canals, dotted with thriving towns, and bright with the green and gold of orchard, field and vineyard. Some of these valleys are more than 200 miles long and from twenty to forty miles wide, and more fertile than the far-famed valleys watered by the river Nile. One who is not familiar with the character of the rich soil has no conception of the future value of these immense valleys. In a few years the territory will be one vast garden, excepting those portions reserved for grazing purposes."

We now ask the reader to refer to the Governor's Report for 1896, and if a copy is not obtainable, to rely upon the faithfulness of our extracts from it.

"Arizona has been called 'the sun-kissed' land and the title is well deserved."

We pause here to call attention to the singular appropriateness of the expression; the word "kissed" suggests a wealth of loving ecstasy, of blending harmonies, of azure skies, of shimmering eyes, balmy breath, the incense of flowers, and all that is sweetest in life.

"In no other country are there so many days of sunshine, and this, combined with an air, pure, invigorating and free from infection, not only sustains and prolongs life in the human family, but creates a condition impossible to excel for the propagation and sustenance of life in the animal and vegetable kingdoms. It is for this reason Arizona produces the finest horses, cattle, sheep and hogs to be found in the world. The earliest and finest-flavored fruits (six weeks earlier than any other state or territory in the Union); flowers of exquisite shape, tinged with the most attractive and pleasing dyes of nature, and cereals—wheat, barley, oats and rye—equaled nowhere else in the country.

Its resources are without limit, its mountains are the storehouse of precious metals and stones, its forests the greatest in the United States, its plains sustain vast herds of cattle and sheep, while the valleys produce grains and fruits that have no equal anywhere.

Arizona possesses one of the finest and most valuable forests in the world, known as the Mogollon forest, which covers an area of 10,000 square miles, or 6,400,000 acres, being, with possibly two exceptions, the most extensive body of timber in the known world.

Agriculture is rapidly becoming a great industry in this territory, and thousands of acres of land are being reclaimed yearly by the development of water for irrigation purposes. Upon this land the husbandman reaps a splendid return for his intelligence and industry, the land producing almost every product known to the temperate and semi-tropical zones.

Stock raising is also being remarkably developed, and thousands of sheep, horses and cattle are yearly fed upon its grazing land.

The product from the three most important industries—mining, stock raising and agriculture—gives an aggregate return of $18,385,550.70, which of itself is a panegyric on the wealth of Arizona's resources.

The mineral output—gold, silver, copper, lead and limestone—aggregated $13,978,263.20.

The stock industry gave a return of $2,757,287.50.

Although owing to the numerous ways by which products are transported, it is almost impossible to obtain statistics which would show an accurate estimate of the amount and value of farm produce exported, yet a very conservative estimate will show a total return from this source of not less than $1,650,000.

Our counties and cities are well governed. Our cities have a less number of policemen, and our court records show that fewer crimes are committed in this territory than in any state of the Union.

Arizona is a most inviting field for capital and skilled labor. Her undeveloped resources are varied and almost without limit. Millions of acres of agricultural land are yet to be reclaimed by the development and proper storage of water. Communication by enlarged and cheaper railroad facilities is urgently demanded between the various points of the territory, that an interchange of home products between the mining and agricultural sections may be made.

Many avenues of industrial life offer varied and profitable inducement for the engagement of capital and labor, and her agricultural, mineral and grazing wealth should receive that attention from outside investors which they deserve.

Factories might also be profitably started. There are many fibrous grasses and plants of indigenous growth that could be used in the manu-

facture of paper, bagging, rope, etc. In the valley of the Colorado river wild hemp suitable for this purpose is found in almost unlimited quantities.

Ironwood, which grows all along the base of our mountains, is very hard when dry, and when polished is of a beautiful appearance. This wood produces a veneering of good quality, which could be made to supply eastern manufacturers, who now obtain their product from other countries.

Arizona has within its borders a population of over 100,000, being an increase of 35,000 since 1893. The people are cultured, energetic and enterprising; they have caused the desert to awaken with life; they have invaded the great forests and delved into the mountains that they might all pay tribute to the necessities of Arizona's modern civilization. The moral and social status is excellent. Our educational facilities meet every demand of a cultured and ambitious people. And every condition which we find in this splendid Territory shows every possible requirement for the making of a great and prosperous Commonwealth.

The immigration is of the very best class, and Arizona numbers among her population representatives from all portions of our Union, and the very highest types of citizenship of the communities whence they emigrate. They are progressive and enterprising, thoroughly American in character, loyal to their country, and justly proud of the home of their adoption."

How To Get There.

"Alice in Wonderland" would lose all its charm if the author failed to inform us how she reached the fairy realm of Fancy.

Arizona is a land of Wonders in a world of Fact, and if the reader thoroughly grasps the situation, he will desire to learn how this favored land can be reached from the United States.

Even if it is not convenient for him to visit it himself, he may have some dear friend or relative for whom this sun-kissed land will mean a new lease of life; or he may be aweary of continual depression in the stock market, the oxidization of gilt-edge securities and 3 per cent. conversions, and sigh for the good old ratios. If he comes to Arizona he can invest his money to good advantage and enjoy perfect health while his profits mature. There is a vital principle in our balmy ozone-laden air that quickens the pulse and makes man feel like a demigod. Here the sluggard feels new energies arise within him, the weak and debilitated lay aside their drugs and spring forth into the glad sunshine like young kids at play.

Most of you will want to come here in comfort and with as little loss of time as possible, and while there is a variety of routes, the most direct, and naturally the most desirable way of getting here, is over the Sunset Route of the Southern Pacific Company, or the Atchison, Topeka & Santa Fe.

The Sunset Route.

This popular line of railroad extends through the entire territory, east and west, and taps every important center. It traverses the entire length of the great Gila valley, scene of the most stupendous irrigating schemes on record, and connects at Maricopa with Phœnix, thirty-five miles distant, in the very heart of the famous Salt River valley. It connects at Bowie with a short line tapping the rich agricultural districts of Graham county and the mineral regions of Globe, and at Lordsburg with the road running to the famous copper mines of Clifton. It is the natural, direct route from Eastern cities through New Orleans and El Paso, through St. Louis, Fort Worth and El Paso, through Kansas City, Fort Worth and El Paso, or through Denver and El Paso. From the West the route is direct from San Francisco, through Los Angeles and Yuma.

First-class and tourist through cars run daily, semi-weekly and weekly during the winter season from Chicago, St. Paul, Minneapolis, St. Louis and Kansas City; daily the year round from New Orleans and San Francisco, and weekly (second-class) from Washington, D. C., and Cincinnati, through New Orleans.

At all times and from whatever direction, the trip is comfortable and exceedingly interesting. This route is the course of the now world-famed Sunset Limited, which has attracted the admiration of the world with its matchless magnificence.

The Southern Pacific company now controls the line running from Benson, Ariz., to Guaymas, in the Mexican state of Sonora, which taps the greatest mineral region in the world and makes the system the most complete in the country.

The A. T. & S. F. R. R.

This line has also direct connection with all the important cities of Arizona. It follows the great central plateau and, consequently, ensures a dry air, remarkably even temperature, delightfully cool nights in the heat of summer, and in winter the rigors of the more northern routes are avoided. It is the great scenic route of the West, touching all points of interest in Colorado, Arizona and California, and is noted for the excellence of its service, special attention being given to the requirements of tourists and immigrants.

The Origin of the Name of Arizona.

When Shakespeare insinuated that there was very little in a name, he had no prophetic vision of the time when the commercial world would regard a name as one of the most important matters to be considered. Any person who wishes to advertise a new nostrum or sell city lots in the wilderness, hunts up a name that will attract purchasers either by reason of its beauty or inexplicability. Sometimes the name means something, and occasionally it is merely a seductive combination of syllables.

We do not know how to classify the name "Arizona." It certainly is not of Spanish origin, and our Indian scholars can not agree upon any part of it. It was originally applied to a place a short distance south of the boundary line, and was then "Arizonac." The Hon. Sam. Hughes claims that it is derived from two Indian words, "Ari" and "Zonac" (as nearly as they can be expressed by English letters), meaning "the place of massacre or chastisement," the inference being that the Indians had a tradition to the effect that they were well punished somewhere in that section.

There is nothing unreasonable in this explanation, but as some of our readers may not feel willing to accept it on account of being commonplace, we offer them the following romantic legend:

The Sun-Beloved Maiden.

There is an ancient Aztec tradition that the earth is born of the sky, which, with certain scientific explanations, accords with the nebular theory, and shows us that the Aztecs could make as shrewd guesses on cosmological matters as some of our own astronomers. There were giants in those days, of course, but they did not find their environment satisfactory and died off, leaving the sky-born world uninhabited.

After a while it happened that a celestial virgin, daughter of one of the thirteen great deities, fell into a decline (probably brought on by *high* living), and the court physician recommended that she be sent to the Santa Cruz valley, where the climate was so excellent that it was able to revive the gods.

His advice was followed, and the virgin was the sole inhabitant of the earth until one night, while in a deep sleep, a drop of dew fell upon her,

and she bore two children, a son and a daughter, from whom have sprung all the dwellers upon earth.

The name of the virgin was Arizunna, and the locality she honored with her earthly residence was near Tucson. The exact spot is not definitely known, but this uncertainty enables all who visit here to make their own choice, which no one can dispute.

Naturally enough, the place where the present race of men originated was called after the mother of all, but as generations passed the original pronunciation was lost and the spelling modified.

The meaning of "Arizunna," as given in the ancient record from which we have compiled the above, is "the sun-beloved maiden," and this is what the modern "Arizona" should mean, anyway.

Arizona a Good Place to Live in.

The Hon. Whitelaw Reid published an interesting article on Arizona in the New York *Tribune*, of November 22, 1896, from which we make the following extracts:

"The man who looks for either the beauty or the seductive excitement of Monte Carlo will not find it. As little will he find the historic remains of the cosmopolitan attractions of Egypt; nor could he reasonably expect the amusements and luxuries of our own Eastern cities. The people of Arizona are still chiefly busy in the pioneer work of subduing it to the residence and uses of civilized man. But it has two transcontinental lines of railway, with numerous feeders; it has fast mails and rival telegraph lines, and is throbbing with the intense life of the splendid West. The two principal towns in the southern portion chiefly sought for their climatic advantages, are Tucson and Phœnix. Each of them has ten thousand inhabitants or more. They have the electric light, telephones, trolley cars, plenty of hotels, banks, book stores, good schools, churches, an occasional theatrical performance, sometimes a lecture or a circus, often a horse race, and, in the spring, a thoroughly curious and interesting 'fiesta.' For the rest, people must take their amusements with them. Good horses are abundant and cheap, and there are plenty of cowboys—the genuine article—to show what horses can do.

"You can not have the luxuries of our New York houses out there, unless you build one; or the variety of our New York markets, unless you charter a refrigerator car. But there are hotels with almost as much frontage as the Waldorf; and, like everything else in the territory excepting the mountains and the deserts, they are new. There are boarding houses of more kinds than one; and brick cottages of eight or ten rooms can occasionally be rented. Better than any of them, for the man with the energy and pluck to take it, is a tent; and he who knows how to 'camp out' with comfort through September in the Adirondacks can camp out in Arizona through the winter.

"As to food, there is plenty, and it is good. From here the markets of Los Angeles, and even of Denver, are largely supplied. Good beef, mutton and poultry are plenty and cheap. Quail, ducks and venison from the vicinity can also be had. Vegetables and fruits are abundant in their season, and sometimes the season is a long one. It is the one country I have lived in where strawberries ripen in the open air ten months in the year. I have had them on my table, fresh picked from the open gardens, at Christmas.

"The man who goes to any considerable Arizona town with the ideas of the Southwest derived from novels, or from 'The Arizona Kicker,' will be greatly mystified. He will find as many churches as in towns of corresponding size in Pennsylvania or Ohio, and probably more school houses. He will find plenty of liquor shops, too, and gambling houses, and dance houses, and yet he will see little disorder unless he hunts late at night for it, and he will find a community of ten thousand people requiring in the daytime only one policeman, and very little occupation for him."

CHAOS REIGNS.

The Town of Chandler, Ohio Turned by a Cyclone Into a

VERITABLE MORGUE.

The Dead and Dying Hourly Augmented.—The Big River Running Wild in Mississippi.

These "scare lines" are taken from an Arizona newspaper, but have nothing to do with us except to awaken our sympathies and cause us to thank God that we live in Arizona.

We have no cyclones or floods, for while nature has been bountiful of mercies, she has been niggard of pestilence. There have been suggestions of earthquakes in the past—the echoes of seismic disturbances elsewhere—but nothing strong enough to stop a clock or force a resignation from a federal official. And yet some people voluntarily face these perils in the United States when they can come to Arizona and live in peace and safety.

Territorial Titles.

In no other part of the country are the people so democratic as in Arizona, and yet titles prevail to a greater extent than elsewhere. We have more colonels than you can find in Kentucky, every lawyer is a judge, every teacher a professor, and the rest of the men are generals and honorables. The titles are bestowed in a free and easy western manner. Everybody speaks to his neighbor without the ceremony of an introduction, and no cards are exchanged except when they play poker or some other social game. If the party addressed looks able to bear the dignity, you call him colonel, and the title sticks; if you know him to be a lawyer (and you soon find out), you dub him judge, and there is never any mistake about a professor. The generals are accounted for otherwise. There are a number of positions with the qualifying title, such as surveyor general, attorney general, general superintendent, general agent, etc., and the dignifying portion is promptly prefixed to the surname, and the owner crowned with a military glory he never earned. We are also prolific of governors, for during the lest few administrations it has taken about three to fill out a term. We have heard of half a dozen majors, but strange to say, our people appear to resent this title unless they are obliged to assume it. We recall only three captains; one was a seafaring man from Maine, the other was an ex-officer of the army, and the third died before we could investigate him. If there are others we never met them. Every man who ever ran for office is entitled to be called honorable—why, we know not—and it is a safe address at all times.

The Wonders of the Desert.

An eastern visitor induced a party of friends to unite in an expedition to the southwest of Tucson for the purpose of discovering a desert, and after traveling over 100 miles they returned with brown cheeks and inordinate appetites. The leader of the party was kind enough to write his impressions for us as follows, and we trust that the publication of the facts will deter others from wasting their time and spoiling their complexions in the same vain pursuit:

"Desert? There is no such thing in Arizona! It has disappeared with the ogres, hydra-headed monsters and other bogies that stunted our childhood growth. There may be lost mines, but there are no deserts.

"Far away in every direction stretch grassy plains, rising and falling

like vast swells of a lazy sea, and encircled by purple hills above which climb the azure peaks of mountains beyond them. Different shades of verdure greet the eye on every side; the six-weeks grass of a bright green, speckled with bright-hued flowers, is varied with the brown and gold of the galleta and gramma. We seem to be driving through endless meadow and vineyard, while the cawing crow flies overhead, little birds twitter among low-bending twigs and the grazing cattle wander hither and thither. The sun creeps cheerily up the eastern sky, the air is soft, yet bracing as an early bath, and the dyspeptic Yankees of our party feel that existence is a delightful fact. And at night, what a good rest we had! Under the bright canopy of a cloudless sky, with moonlight softening the scene, a crispiness in the air that quickened every atom of blood and built anew all the lung cells that life's work, exposures and dangers had demolished or placed on the retired list!

"Only one of the sleepers awoke before daylight; he was so green that a jack rabbit mistook his ear for some new food plant. Morning brought new life and new marvels. Great lakes, promontories, peaks, suspension bridges and cities with great buildings moved majestically in a marvelous procession across the orient for an hour or more, emphasizing the grandest pageant that was ever attempted. It was the desert mirage, and one such spectacular exhibition is alone worth the expense and trouble of a journey to Arizona. If this is life on the desert, let me live it alway!"

Pima County the First.

Pima county was the first portion of Arizona settled by Europeans, and is one of the oldest political divisions of the territory, having been organized by the first legislature in 1864. Its original boundaries took in the whole of Cochise county and portions of Pinal and Graham. It is still of fair size, being about 180 miles in length from east to west, with a width of eighty miles at its eastern end, which is maintained for seventy miles, when it gradually decreases to twenty miles on the western end.

It derives its name from the Indian tribe known as *Pimas*, who were found within its borders by the Spaniards, and formed part of what was known to them at first as Pimeria and later as Papagueria.

The western portion of the county, bordering the line of the Mexican state of Sonora, is a series of wide, rolling plains, with detached mountains and isolated peaks. These mountains are rocky and rugged, the plains covered with grass and shrubs and in some places with mesquite and stunted native timber. Surface water is generally scarce, and did not every mountain, peak and butte contain rich deposits of the precious metals, the natural attractions would be few.

South of Tucson the county is made up of grassy plains, rolling hills and lofty mountains. East, to the line of Cochise, it is of similar character, while to the north the horizon is filled with the massive chain of the Santa Catalinas. South and east the county is crossed by the Santa Rita, Patagonia, Whetstone and Atascoso ranges, and is one of the most delightful portions of Arizona. The mountains are clothed with verdure, and the valleys and glens afford the finest grazing to be found in the West.

Water is seldom wanting, and the valleys of the Sta. Cruz, Sonoita, Babacomari, Sopori and Arivaca are not exceeded for beauty and fertility. In the Santa Rita, Santa Catalina and Patagonia mountains are many lovely vales, and the climate is simply perfect, even during the hottest days of summer.

The Santa Cruz river flows through the county from its source in the Patagonia range to the boundary of Maricopa; the Sonoita is one of it‘

tributaries in the south and carries quite a volume of water. The Rillito, which receives the waters of the Pantano Cienega, enters the Santa Cruz just below Tucson. The Arivaca and Sopori creeks are ever-running streams, and water can be obtained at moderate depths all over the eastern part of the county.

Thirty per cent. of the land of Pima county can be successfully irrigated and reclaimed by a system of ditches, sub-drainage pipes and reservoirs for water storage at a reasonable outlay, and hundreds of acres thus added to the cultivable area, at an average cost of reclamation of $6 per acre. Wheat, barley, oats, alfalfa, hay, corn, sorghum, tobacco, potatoes, peas, beans, beets, all kinds of vegetables, fruit, etc., can be produced on these lands. The yield of wheat, barley and oats will be from thirty-five to forty bushels per acre; corn, from forty to sixty bushels; hay, three tons, and alfalfa, five to seven tons.

There are 130 miles of irrigation ditches in the county, largely situated in the Santa Cruz, Sonoita and Rillito valleys. The aggregate cost of building same is estimated at $150,000. A new ditch, seven miles in length, was recently taken from the Santa Cruz, north of the town of Tucson, and about 1,500 additional acres put under cultivation. The irrigation capacity of all the canals in the county is estimated at 12,000 acres.

The population is estimated at 20,000, or one-fifth of the total population of the territory, and at least one-tenth of these are actively engaged in mining.

The average rainfall is about thirteen inches, the heaviest precipitation occurring generally in the months of July and November.

There are about 1,000,000 acres of surveyed land in the county, with filings on only 86,000.

At a conservative estimate there are about 175 mines being operated in Pima county. The principal ones produce gold, silver, copper, lead and iron ores. There are also quarries of marble, building stone and limestone.

Gold and silver bullion and placer gold were extracted from mines in Pima county aggregating, probably, $500,000.

The base bullion produced of gold, silver, copper and lead ore, and shipped by railroad to eastern smelters and refiners, exceeds 1,500 tons, and in ingot copper and matte, about 500 tons.

The Tucson Mining and Smelting Company (a small copper plant operated by foreign capital near Tucson) received for the fiscal year ended June 30, 1896, 2,200,000 pounds of ore and shipped 262,751 pounds of copper bullion and 228,548 pounds of matte.

The Empire Mining and Smelting Company has lately erected a 100-ton lead-silver smelter near Crittenden, which will be enlarged at an early date.

The principal towns are Tucson, Nogales, Arivaca, Oro Blanco, Crittenden and Harshaw.

The assessed value of all property in the county is $4,000,000, but this can not be taken to represent more than 40 per cent. of the true value. The erroneous idea of under-valuation of property and comparatively high rate of taxation prevails here, as in most other new countries. The highest county and territorial tax rate is $3.50 per $100, being a trifle over $2 on a just valuation.

Two main lines of railroad cross the county, the Southern Pacific and Sonora road, which latter runs from Benson to the seaport of Guaymas, on the Gulf of California. These have other connections, which, while they do not properly belong to a description of Pima county, feed its commerce.

Tarantulas and Rattlesnakes.

Some of our very credulous visitors pass the first few weeks of their residence here in a state of feverish excitement that seriously interferes with the complete enjoyment of our wonderful climate. They mistake the cheerful chirp of the cricket for the whirr of rattles, and, under the influence of an excited imagination, a common, every-day New England cockroach becomes anything from a pterodactyl to a dinosaurus.

They miss the familiar domestic pests which frequently invade the boudoirs of the pleasant East; they find none of the nimble fleas that worried them in California, and the voice of the mosquito is hardly ever heard in the land.

Curiosity succeeds dread, and they crave for a glimpse of the deadly monsters of the arid regions, and want to be introduced to the fiery perils of the trackless deserts. They are willing to endure the lack of domestic vermin and mosquitoes, but can not return East without interviewing a few tarantulas and rattlesnakes. Then we show them some specimens of our choicest varieties (which we keep in alcohol for this purpose), and they wearily exclaim: "We have bigger than these at home."

It is a sad blow to our local pride to have to face this fact, and if the pressure continues we shall be compelled to import some vermin from the East in order to maintain our reputation and satisfy the morbid cravings of health-seekers. Still, we can not be the first in everything!

Speaking soberly, a man may live in Arizona a year or more and see nothing more venomous than a cockroach or a cricket, unless he invades the saloons. If he goes out hunting in the foothills of the Sierras or traverses the grassy mesas, he may encounter a tarantula or a rattlesnake, but they will avoid him if they can, as they are not of social dispositions and prefer to meditate in solitude. Should he see any, he will compare them, with respect to size and beauty, with those he has met elsewhere, and wonder how we achieved our reputation. He will also learn that they have less venom, or a poorer quality, than those found in moist, hot regions, such as South Carolina and Florida, and their bite is only fatal when an excess of antidote is imbibed.

We hate to disappoint our friends, but, really, we are compelled to puncture the prevailing idea that Southern Arizona is a desert inhabited by rattlesnakes and tarantulas. The only deserts we can refer the traveler to are in Mexico, two hundred miles away. We have not personally inspected them, and therefore can not state positively how much vivid imagination or other stimulants will be required to produce the best results.

The following story is introduced solely to mitigate the effect of our iconoclastic remarks and has no moral worth mentioning. The narrators were introduced to us as "Honest Jim of Pantano and A Friend." We presume that it was A Friend's particular business to verify Jim's affidavits and make it unnecessary for him to require change for a quarter.

The Tarantula and the Mountain Lion.

"The finest taranchula I ever seen was at Lyin' gulch, in the Santa Ritas. I was samplin' some likely croppin's when I heard a spat and a whirr like as if a mountain lyin was aroun', so I clum up a boulder an' waited.

It was a lyin sure enough—about the size of a three-year-old steer—an' he squatted just below, glarin' at me as if I'd jumped his claim. Very soon he rose up an' swung his tail backwards an' forwards, an' then back again, till it was movin' easy, an' come for me.

I stuck my toes into the rock an' hung head down, till the lyin had made his jump, an' then resoomed my seat an' offered to bet him the drinks he couldn't do it again.

This made him swish his tail swisher than ever, an' it struck again' a rock an' hurt itself, which made him so bilin' mad that he made another play for me just as I got down again.

This racket kep' repeatin' so long that my toes were about worn out diggin' into the boulder, but just as I was about givin' up, a taranchula, about a foot high, came out to sun himself and intervoo the neighbors, an' the lyin's tail caught him right in the jaw before he could put up his hands, so to speak.

The taranchula was madder than two wet hens an' couldn't speak for cussin', but he clings on to that tail like a pipe-wrench.

Now, the lyin had been jumpin' backwards an' forwards an' back again so much that he couldn't stop himself; so he just kept sailin' through the air while the taranchula bit and bit till the pizen begins to work an' the lyin to swell.

I got off my perch and rolled over on the groun', laffin' so hard that I couldn't see; an' the lyin kept swellin' and swellin' till he swoll so much that he floated off in the air like a balloon, clear out of sight, with the taranchula still hanging on to his tail."

"That yarn wouldn't be much with the lyin left out," remarked A Friend, in a deep tone of voice; "but it's true as gospel, for I finally landed that tarantla myself. I was out huntin' that same day an' saw what I took to be a large eagle flyin' above me. It was so far off I could hardly see it, but I took a shot for luck. It fell about a mile off, an' when I reached the object it was a tarantla as big as a Californy mule. Gentlemen, I reckon that was Jim's tarantla, an' he'd swallered the lyin to get back his pizen, so's to be able to continner business at the old stand."

The Story of the Sun-Kissed Land.

Ruins of Casa Grande.

What is the ancient story of the land ?
Can crumbling tower and mouldering ruin tell—
Wide furrowed plains and miles of broad canal—
The hill forts and the niches in the cliffs ?
Lost is the ancient story, and we give
The modern history of men who reared
New cities, and re-plowed the weedy fields.
And new aligned the old canals.

THE FIRST EXPLORERS.

The reader having now located Arizona with reasonable certainty, will be curious to learn something of its early history, and in the following pages we shall endeavor to give him some information on the subject.

Setting aside as unprofitable all speculations respecting the ancient inhabitants, the history begins from the advent of Europeans, and is full of romance.

In June, 1527, Panfilo de Narvaez set sail from Spain with a fleet of five ships and a force of 600 men, and, after several disasters, was driven by a storm to the western coast of Florida. He landed with 300 men and forty horses and proceeded inland, while the fleet followed the coast, the forces expecting to reunite thereafter. They never met, however, for after many perilous adventures only four of the land expedition survived, and these crossed the continent, passing through the southeastern corner of Arizona, and finally reaching the Spanish camps on the coast of the Gulf of California.

One of this band of bold adventurers was a negro slave, Estevanico, and to him belongs the honor of being one of the earliest explorers of the southern portion of the present United States. His subsequent history proves him to have been a man of high intelligence and enterprise, and as fearless and ambitious as any of the cavaliers who carried the banner of Spain through the wilderness of the New World. He was an honor to his race, and the colored citizens of this republic should perpetuate his memory, and we suggest a monument in Central park, New York.

The negro, Estevanico, afterwards became the property of the Viceroy of Mexico, and, no doubt, influenced his master to form projects for the further exploration of the great Northwest.

In 1538 a party, accompanied by Father Juan Olmedo, made an expedition to the north and returned with reports of the wonderful wealth and civilization of the inhabitants, but was unable to reach the famous seven cities of Cibola, the people of which were said to be as civilized and opulent as the Aztecs.

The first organized effort was made by Father Marcos de Niza, chief of the Franciscans at Culiacan, which place he left on March 7, 1539, being accompanied by the negro, Estevanico, and a number of the natives.

The party proceeded northward through the present Mexican state of Sonora and halted at Bacapa, in the Santa Cruz valley, near the present site of Tucson. Bacapa, or, as it was afterwards called, Bac, was a settlement of considerable size and well provided with provisions. Here the negro was sent ahead to explore the way, and, sending back favorable reports, Father Niza proceeded onward, following the Santa Cruz to the Indian settlements on the Gila river.

Meanwhile the adventurous negro pushed onward, ambitious to be the first to penetrate the secrets of the far-famed cities of Cibola, designing, perhaps, to emulate the achievements of Cortez. At every important landmark he erected wooden crosses to point the way for those who followed, or he sent back messengers with crosses in their hands to cheer the Father and his weary companions.

At last he reached the goal of his hopes, but the Cibolans expected no god of his color, and killed him and several of his followers.

The remaining members of the pioneer party hurried back to Father Niza to warn him of the danger ahead and recount the fate of their companions; but the fearless Franciscan calmed their troubled minds and, relying on the power of the cross, hurried forward and soon obtained a glimpse of one of the great cities, which appeared to him to be richer and more populous than Mexico.

According to the custom of those days, he set up a cross and solemnly took possession of the country for the crown of Spain, and then took the shortest route home before the new subjects could realize what had happened them.

According to his sworn statement, duly made to the proper authorities, it was a marvelous country, and he regretted that he did not feel able to paint the wonders he had seen in colors sufficiently glowing.

Cortez, and some other skeptical or envious persons, were of the opinion that Father Niza seriously fractured the truth for political purposes, but the country he traversed is in evidence to sustain his veracity, and if the cities of Cibola did not eventually come up to his expectations, he should not be blamed.

According to some accounts, the murder of Estevanico was provoked by his flirtations with some of the leading ladies of Cibola, which aroused the jealous ire of their lords; but this is probably a fiction, invented by envious cavaliers to mar the luster of his fame. Had he been a white man, it would never have been mentioned. Even if it be true, the fact does not detract from his reputation as a daring explorer, and he only mildly emulated the gallant conquerors of Mexico.

Father Niza's efforts in the exploration line were evidently appreciated by the church, for he was shortly afterwards appointed Provincial of the Franciscans. Probably he thought solely of the souls to be saved, and knowing that the cavaliers could only be influenced to conquer by inducements of wealth, inserted some prize packages in his narrative. Let this be as it may, his account was finally conceded to be as reliable as others of the kind, and in 1540 an expedition was sent out, under Coronado, to verify his affidavits.

The party consisted of 300 Spaniards and 800 Indians, Niza accompanying Coronado with an advance guard, and the main body following at some distance.

Coronado generally followed the route taken by Niza, passing up the Santa Cruz valley to Bac, which he also found populous and thriving, and reaching the Casa Grande on the Gila, which he described as "a great red house in ruins."

The explorers met with opposition from the Cibolans, but finally subdued the country, and were disappointed when they found nothing but agricultural settlements, and none of the opulence they had looked for.

Father Niza, however, was quite satisfied. The country had been subjected to Spanish dominion, and the church could now do the rest. Missionaries were placed along the route to inaugurate the good work, and remained at their stations after Coronado's army practically abandoned the country, in 1542. They founded several settlements in the Santa Cruz valley, and continued with the natives even when their connection with the government in Mexico was severed. Among others, the settlement in the vicinity of Tucson was permanently established under the name of Bac or Bacapa; and when, after several generations had passed, a new crusade began, the missionaries of the seventeenth century found the Indians at Bac fully prepared for the work, and churches arose, as if by magic, all along the valley.

It is true that until the latter half of the seventeenth century there is little record of the doings of the Spaniards in Arizona, and for this reason

it has been assumed that nothing was done. The absence of records accessible to the historian is to be regretted, but the fact does not prove that there was nothing to record. We know that for certain periods, during the first half of the present century, the records are so insignificant that it might be argued that the country was abandoned; but it was not, for men who were alive within the last few years knew to the contrary.

The Picacho de Metates, west of Tucson; the turquoise mines in the Silver Belle district and elsewhere, were known to the Aztecs, as also its mineral wealth. The ruins of the settlements of the ancient miners are still in evidence; the rock carvings near them are of an entirely different character from those found in other parts of Arizona, being for the most part astronomical symbols.

The Spaniards on the frontier had no incentive to furnish information to the official cormorants of Mexico, who confiscated every revealed treasure, and hence, when the church or laity stumbled on a good thing, they kept their own counsel. There is, too, every reason to believe that it was no more unusual then than it has been since, for the common Spaniard, the rank and file, to amalgamate with the Indians, especially with such peaceful tribes as those inhabiting the fertile valleys of Southern Arizona.

The antagonism between the members of the Franciscan and Jesuit orders may account for the absence of some of the records required to complete the history of settlement, and the acts of hostile Indians must also be considered.

When the Jesuits arrived they were not so well acquainted with the conditions as those who preceded them, and their mining operations were soon, apparently, paralyzed by the extravagant claims of the king of Spain, whose "royal patrimony" was held to cover all mineral treasures. Silver mining was, consequently, abandoned, this metal being too bulky to smuggle through the lines of hungry officials; but gold was found to be just as valuable and more easily concealed. The church and laity, therefore, were compelled to adopt a gold standard, and exploited this metal wherever it could be found.

The writer has visited several ancient mines, the ore of which carried both metals, one or other predominating, and noted with some curiosity that it had been carefully separated, the portions richest in silver being left on the dump; and when this metal predominated across the whole vein, work was invariably abandoned.

The appearance on the scene of Father Eusebius Kuhn, or Kino, as he is usually called, revived missionary interest in Arizona. Kino was born in the Austrian province of Tyrol, and was educated partly at the University of Ingoldstadt, in Bavaria. After a serious illness he adopted the name of Francisco, and vowed to devote his life to the conversion of American heathen. He was a mathematician and astronomer, and remarkably endowed with virtue and intelligence. He probably joined the Jesuit order in California, about 1684.

He reached the field of his future labors in 1687, and five years later visited the Santa Cruz valley, passing by the Santa Rita mountains and through the settlements of Tubac and Tucson. The narrative of his journey speaks of settlements already founded, although there was no record at the time showing the previous presence of missionaries in the country!—a most remarkable confirmation of our views.

In 1694 Fathers Kino and Mange made a tour of inspection, regular missions having been established during the previous three or four years at Guevavi, San Cayetano, Tumacacori and San Xavier del Bac. Father Kino gave glowing reports of the condition of the country as a field for missionary work, but failed to secure any hearty coöperation. His zeal never relaxed, however, and his labors continued unremittingly until he died, in 1711.

The Case Grande Ruins.

These ruins, of which we give an illustration on the title page, are situate in the Casa Grande valley, about seventy-five miles northwest of Tucson, and are regarded as the most interesting remains of the prehistoric age found on this continent.

The front of the main building measures sixty feet and forty-three feet wide. The first story is thirteen feet high; the second, nine feet; third and fourth, eight feet. The greater part of the upper story has disappeared. The walls are between four and five feet thick and the material of which they are constructed is almost indestructible concrete, made of fine gravel, sand and cement, closely resembling granotitsic now used in Washington. The walls, both inside and outside, are plastered with cement, which clings to them with wonderful tenacity, on the inside being smooth and glossy, as the best hard-finished interiors of the present day.

The lower story is nearly filled up with crumbling debris and drifting sand of the plains. The holes in which the ceiling timbers were placed are plainly visible, but every particle has been carried away by relic hunters, and the disintegration of the walls has been so rapid of late years that if measures are not immediately taken to strengthen them, the whole structure will fall into a shapeless ruin.

For miles around the mysterious Casa Grande, mounds, now hardly distinguishable from the desert sands, bear indisputable evidence of having been at some remote period, adobe structures.

The most ancient traditions of the Pimas and Papagos, who yet live here where their fathers lived for centuries, alluded to them as "ruins." The earliest historic record we have of the Casa Grande was given by the famous Spanish cavalier and explorer, Cabeza de Vaca, who discovered it during his journey across the continent about 1537. A few years later, the famous explorer, Don Francisco de Coronado, who led an expedition into New Mexico, states that the Pima Indians had no knowledge of the origin or history of the town which they believed had existed there. It had always been ruins to them and to their ancestors. Kino and Mange, who visited there in 1694, also gave an account of twelve other ruins in the vicinity. Father Pedro Faut, in 1777, found them in much the same condition. He describes the main building as an oblong square, facing the cardinal points of the compass, the exterior wall extending from north to south 430 feet, and from east to west 320 feet.

Ancient Fortifications.

The theory has been advanced that the Aztecs, whose civilization culminated in the Valley of Mexico, passed through Arizona, leaving behind them, at different points, members of their tribes whose faith was weak or who were unfitted otherwise to be factors in the evolution of a great nation. This theory accounts for the records of ancient civilization found on all our hills and in all our valleys. Southern Arizona was at one time densely populated; this must have been before the segregation of the higher types who afterwards founded the Aztec empire overthrown by the Spaniards. After the lapse of years, perhaps centuries, other segregations took place, and the Zuni and Moqui civilizations were founded. These were the more advanced spirits, and those left behind may be regarded as the refuse of the ancient race, who lacked alike energy to move and the courage to maintain themselves against the incursions of a savage race, which had for a long time threatened them with annihilation. Cultivation of the soil was neglected, the wonderful storage reservoirs and extensive canals left them as a heritage were filled by the winds with the dust of unregarded fields, and the huge temples, granaries and homes of their race were abandoned to the Apache marauder. The struggle for existence and the assaults of their enemies depleted their

ranks and caused them to lose the memory of the vanished civilization they had shared. New wants and conditions modified their forms and features and even changed their language, so that their descent can only be traced circumstantially.

During this period of disintegration, every hill became a fort and every peak a watch-tower; the first for defense, and the second in order to give the trembling laborers in the fields timely warning of the approach of enemies.

Hence nearly every hilltop in Southern Arizona is found to be walled with circles of stone, sometimes from base to summit, a precaution that shows the acuteness of the struggle for existence. On the Saddle mountain, west of Tucson, there are seven circles of fortification and the ruins of rough habitations on the summit. Sentinel peak was used as a watch tower, and fires were built to give warning of danger. In the Sierrita mountains we find on the crest of Santo Domingo, not only rough fortifications, but a line of stone buildings, apparently designed to shelter the families of the tribesmen. These were probably stored with water and provisions at convenient seasons, and became a place of common refuge during times of trouble.

Indian Rock Carving.

Less than a mile from the center of Tucson, on the west side of the valley, reached by a shady lane through fields, gardens and orchards, is a dark colored hill covered with rocks thrown up in Titanic heaps, called the *Picacho de Metates.*

Here the ancient people found a peculiar lava stone, sonorous as iron and as durable as steel, from which they manufactured the *metates* and *manos* used in grinding corn.

These were shipped to all parts of the country, and there is every reason to suppose that the Aztecs drew their supply largely from this point.

That the manufacture of these necessary implements was carried on extensively at one time is proven by the abundance of chips, and the curious searcher will frequently find half finished stones, abandoned because of defective material.

The surface of the rock is, apparently, calcined to a deep iron purple, but beneath the crust the material is a bluish grey color. All over the hill there are rocks carved with grotesque figures cut by the ancient workers, some of them so faint with age as to be barely decipherable..

The writer copied a number of these "paintings," as they are erroneously called, and believing that they were intended to convey some meaning, spent a considerable time in seeking their interpretation.

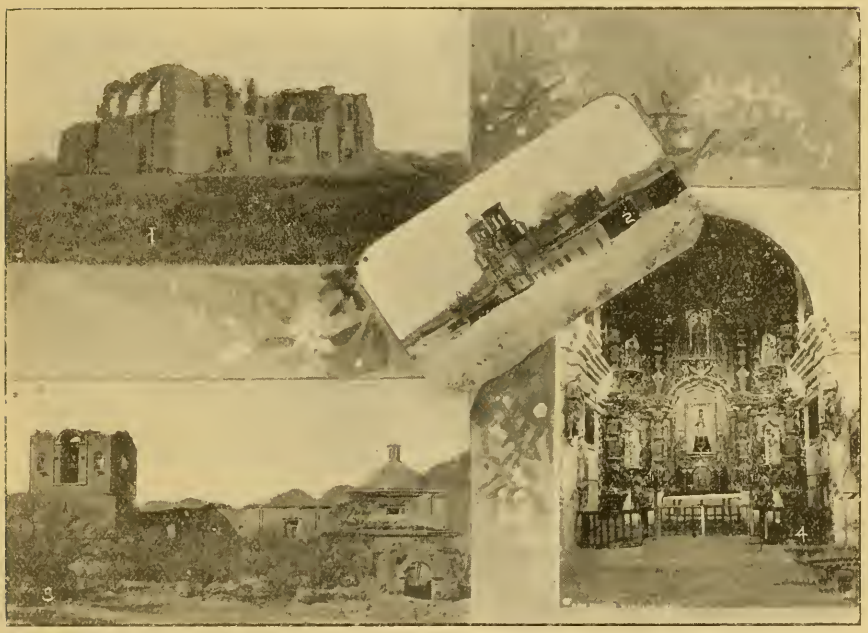
The result of his labors is given in this section, and, if he is correct in his readings, they show a depth of thought and power of observation far beyond what we might have expected of the primitive people who made them.

This might be mistaken for an individual making antics before a mirror, or a progenitor of the modern pugilist overcoming the resistance of a bag of wind. The object to the left is neither a mirror nor a wind-bag; it is a sworn statement intended to defeat the election of some ambitious chief, and the party to the right is evidently breaking his back in an effort to make a truthful affidavit. The modern Arizonian is noted for the number and strength of his affidavits under similar circumstances, and is is strange to find that this method of lying has the seal of antiquity, and is, we might say, native to the soil.

The Old Missions.

Cliff dwellings and other evidences of prehistoric races that exist in Arizona invoke idle speculation, but the desolate and crumbling temples built by the early fathers awaken a lively sympathy and admiration. The devotion and enterprise of these spiritual pioneers, who arrived with the cross and invaded the homes of the savages to extend the dominion of the church, command our respect, and inspire us, not with speculative wonder, but with real interest.

They lived almost within the memory of man, and the fruit of their industry and zeal has outlived the devastation of savagery and time. Their temples were raised to an ever-living God; the rites they practiced in the



Old Missions: 1. Ruins of San Agustin, near Tucson.
2. San Xavier, near Tucson.
3. Ruins of Tumacacori.
4. Altar of San Xavier.

wilderness still move the faithful heart, and the holy doctrines they taught continue to smooth the path of life and lay the foundations for eternity!

The mission ruins give their own history, as the upheaved strata of the earth record the geological changes worked by Time.

The crumbling walls, the tottering towers, and facades rudely sculptured, are monuments to the industry of the vanished devotees; the sacred cross, emblem of the faith and hope they worked and lived for, still crowns the white basilica, and mutely claims the adoration of the passing *raquero;* the ill-defined niches along the caving walls once served as sainted shrines, before which the half-tamed savages were taught to bow the knee; along

the *acequia's* broken banks, trees foreign to the clime bend low and whisper to the passing breeze their memories of the lives of those who nurtured them. Behind the pile of crumbling walls and towers rest the mortal remains of those that built, adored or served—the builders, and that which they built, are side by side in death and ruin! The soul-inspired clay is resolved into its elements, and the thing of beauty that it made is pressing back to the earth that it sprung from at the command of mind! But the work was not all in vain, for nothing is in vain. The preacher spoke falsely when he said "All is vanity," for vanity is only in the minds of men. Acts live for ever and build Time and Eternity. The Fathers performed their allotted work, and that work still lives, though a century has passed since the mission bells echoed up the cañons to the hills, bidding the laborer cease his toil and water the germ of an immortal hope!

The First Missions.

"Father Kino reached Sonora in 1867, and by 1690 had established four missions.

The residents of the Santa Cruz valley were so urgent in their demands for missionary service, and the field was so inviting, that the mission of Guevavi, at the headwaters of the Santa Cruz river, was founded, shortly followed by one at Tumacacori, near Tubac, and then another at San Xavier, near Tucson. The first church built at San Xavier was a small and modest adobe building, hastily erected to meet the wants of the new mission. The fragments of records found in the church give an idea of the population that lived in the vicinity, by the number of baptisms which were yearly administered from 1720 to 1767. This population must have been considerable. The records show that twenty-two Jesuit missionaries successively administered at San Xavier between the dates mentioned, the last of which was that of their expulsion by the Spanish government.

This mission was one of the most flourishing until 1751, when the Indians revolted, being instigated by an Indian called Luis, from Saric, who pretended to be a wizard of marvelous power.

The missions that escaped complete ruin during the revolt, which lasted four years, were hardly started again when the Jesuits were expelled. The Franciscan, Father Garcez, found San Xavier in a pitiable condition, but by his great frugality and apostolic virtues, he gained the love and confidence of his flock.

In 1768 the church of San Agustin del Tucson was founded. The church itself has entirely disappeared, but a remnant of the residence of the priests, the workshops and granaries, still remains, a mouldering pile of brown ruins on the edge of the river, ten minutes' walk from Tucson. This was sometimes called the Church of the Holy Infant. The date of its foundation was lately discovered in one of the records in the government archives at Hermosillo, Mexico.

The erection of the present San Xavier church was begun in 1783 and finished in 1797, the date appearing on one of the doors of the structure. This is further confirmed by the testimony of a few old people who assisted at the dedication.

The brothers Jaumas had charge of the construction, as we are informed, and they afterwards superintended the erection of similar structures at Tumacacori and Caborca; but the fathers themselves, as well as the lay brothers, must have contributed somewhat to the adornment of the edifice. No mention, however, is made of any of their names on the records extant."

This illustrates a domestic tragedy and assures us that the corporal punishment of youth was early recognized as an educational factor.

The youth was evidently seized in the act of commission and kicks and struggles in his effort to avoid chastisement. The abnormal development of the head expresses the openness of feature observed in modern children in like circumstances, and was the only method by which the rock-defacing artist could depict the yells!

Polygamy prevailed at the period, and the adult figures represent two of the child's mothers.

The instrument of torture carried by the one to the right is a common switch torn from a convenient bush, while the other displays an instrument resembling a boot-jack. It is, however, a contrivance used by the Indians on their hunting expeditions, the prey being caught alive and then choked to death between the forks, as needed.

Description of the Mission of San Xavier.

"The site is well chosen, with a broad sweep of plain and valley, hemmed in by purple mountains. The church, as can be seen by its arches, surpassing the semicircle, and the ornamental work in low relief which covers the flat surfaces of some parts of its walls, belongs to the Moorish style.

Over the ruins of a wall of brick and stone we enter the atrium, an enclosure 66×33 feet, which separates the church from the plaza and was used as a place for meetings relating to matters not directly connected with religion.

On the frontispiece, which shows the width of the church with its two towers, is placed, in low relief, the coat-of-arms of the order of St. Francis of Assisi. It consists of an escutcheon, with a white ground filled in with a twisted cord, and a cross on which are nailed one arm of our Savior and one of St. Francis, representing the union of the disciple with the Divine Master in charity and the love of suffering. The arm of our Lord is bare, while that of St. Francis is covered. On the right side of the escutcheon is the monogram of Jesus, the Savior of men, and that of the Blessed Virgin Mary on the left. The frontispiece was surmounted by a life-size statue of St. Francis, which is now nearly demolished by the hand of time.

The church, which is built of stone and brick, is 105×27 feet inside the walls. Its form is that of a cross, the transept forming on each side of the nave a chapel of twenty-one feet square. The church has only one nave, which is divided into six portions, marked by as many arches, each one resting on two pillars, set against the walls. Above the transept is a cupola of about fifty feet in elevation, the remainder of the vaults in the church being only about thirty feet high.

Going from the front door to the main altar, there is on the right hand side wall a fresco representing the coming of the Holy Ghost upon the disciples. Opposite to it is the picture, also in fresco, of the Last Supper. Both paintings measure about 9×5 feet.

In the first chapel to the right hand of the two altars, one facing the nave with the image of our "Lady of Sorrows," standing at the foot of a large cross, which is deeply engraved in the wall, and the other one with the image of the Immaculate Conception. In the same chapel are two frescoes representing Our Lady of the Rosary and the hidden life of our Savior. The opposite chapel is also adorned with two altars. One of them is dedicated to the Passion of our Lord, and the other to St. Joseph. There are also two paintings, the subjects of which are Our Lady of the Pillar and The Presentation of Our Lord in the Temple.

The main altar, which stands at the head of the church, facing the nave, is dedicated to St. Francis Xavier, the patron saint the Jesuits had chosen for the first church they had established in the mission. Above the image of St. Francis Xavier is that of the Holy Virgin; between the statues of St.

Peter and St. Paul, and at the summit of the altar piece, the bust of God, the Creator. The pictures which are seen on the walls near this altar are: On the right hand side, "The Adoration of the Wise Men," with the "Flight into Egypt;" and on the left, "The Adoration of the Shepherds," with the "Annunciation."

These altars, and especially the principal one, are decorated with columns and a great profusion of arabesques, in low relief, all gilded or painted with different colors, according to the requirements of the Moorish style.

Besides the images we have mentioned there are the statues of the twelve apostles, placed in niches cut in the pillars of the church, and many others, representing generally some saints of the Order of St. Francis. There are also in the dome of the cupola the pictures of several personages of the order who occupied high rank in the church.

Returning to the front door, we find two small openings communicating with the towers. The first room on the right, which is formed by the inside of the tower, is about twelve feet square, and is used for the ministration of baptisms. A similar room, which is of no particular use now, but which corresponds to the mortuary chapel of the old basilicas, is located in the left tower. From each one of these rooms commence the stairs, cut in the thickness of the walls, and leading to the upper stories. Starting from the baptistery, the second flight reaches the choir of the church. A good view of the upper part of the monument can be had from that place. There are also some frescoes worth noticing. These are the Holy Family, facing the main altar; St. Francis, represented as raptured by heavenly love, in a fiery chariot; St. Dominic receiving from the Blessed Virgin the mission to promote the devotion of the rosary in the world; and the four Evangelists, with their characteristic attributes. Two flights more lead to the belfry, where are four rough and home-made bells of small size. Twenty-two steps more bring the visitor to the top story and under the little dome covering the tower, an elevation of about seventy-five feet above the ground. Here a glance can be cast on the beautiful and extensive valley of the Santa Cruz, and the surrounding country.

One of the towers, as can be seen, was never completed; it lacks the dome and plastering from the second story above. The reason why it remained unfinished is not known.

On the west side of the church, separated from it by a narrow passage, is an inclosure with an opening on the north and a small chapel standing at its western side. The ground enclosed was formerly used as a cemetery, and the chapel was the place where the dead bodies were kept until the ceremony of the burial could be performed.

On the east side of the church is the mission building, which formerly occupied a somewhat extensive space, and consisted of the rooms necessary for the priests, of a soap factory and stores for the provisions. Besides, there were several farming houses conveniently located on the mission land. Of these buildings there are now only two rooms, making a body with the church, and four extending south and facing on the church plaza.

The little butte adjoining the church shows, on its top, the crater of an extinct volcano."

A Legend of Tumacacori.

Some fantastic legend is invariably attached to an old ruin by the ignorant or credulous, and the mission church of Tumacacori, near Tubac, has not escaped, for it is believed by the ignorant Mexicans that at dreary midnight's cheerless hour, mass is celebrated by a ghostly priest.

The belief is apparently sustained by the personal experience of a *raquero* named Davila, who claims to have involuntarily attended mass in

the ruins in company with two others, but the traditional fatality, which imposed the penalty of death upon mortal witnesses, did not operate in their case, except after a long interval.

The Ghostly Priest.

"We had been herding some cattle in the mountains, and when we reached the mission, about an hour before midnight, our horses were so worn out that we could urge them no further, and, much against our inclinations, we resolved to camp in the ruins and make Tubac next morning. We turned our animals loose in the enclosure behind the church, and carried our traps into the vestibule of the building. Neither of my companions had any superstitious fears, and mine were not strong enough to bother me.

The interior was dark and dismal as a cavern, but beyond, the moonlight streaked the walls of the nave, and the cupola above the chancel glistened like a snowdrift in the sunlight.

It was the work of a few moments to build a fire, and as the flames rose, the shadows danced on the walls, and the smoke curled up like incense, causing the bats to whine and screech as they fluttered from the roof, in and out and round about.

As we lolled by the fire and toasted our *carne-seca*, my thoughts ran back through the years to the time when the gloomy building our presence seemed to desecrate was the heart of life, industry and zeal. Our shadows stretched along the floor, over the straggling weeds that grew where worshipers had knelt, and, towering upwards, seemed to threaten us from the cracked and crumbling walls.

Having been up most of the previous night, we were well disposed to take advantage of the present opportunity to rest. There was a large pile of loose straw in one corner, and we spread this on the ground and covered it with our saddle cloths.

How long we slept I never knew, for slumber measures not time, but I was suddenly awakened by a clutch upon my shoulder and a hoarse whisper in my ear, '*Mirad por Dios!*'

Starting up, I was conscious of the fact that the fire had gone out and the moon had dropped behind the western hills, yet there was a strange glow about me that cast no shadows, as if the air itself were luminous. If my companions had awakened they showed no signs of animation now, but knelt by my side, motionless as statues, their faces corpse-like, and their eyes fixed with a glassy stare upon the distant chancel. As my gaze turned in the same direction, every hair upon my head seemed to prick and burn, the pulsation of my heart was stilled, a clammy sweat beaded my forehead and fell upon my clasped hands, and my soul succumbed to the influence of inexpressible awe.

What I saw seemed pictured on my mind from within and not visible as material things are. The chancel glowed with the same strange light that filled the space about me, but more intense and with a faint purple tint. I felt like one sinking in deep waters, with life passing away in a dream, when the sound of a soft, low chant bubbled in my ears like the voice of a distant stream; louder it grew and louder, then seemed to sleep, then swelled again full of rich melody. It suddenly ceased and a form robed like a priest knelt in the chancel, and an acolyte knelt on each side of him and gently swayed the censers, and the incense rose and hung above the three forms like a cloud. The chant began again and the priest turned his face to the auditorium and appeared to mutter a prayer. Through the misty incense which now coiled about him like a shadowy serpent, the features could be partially distinguished. They were those of an aged man, full of benignity but tinged with sorrow. He turned and knelt again with the acolytes behind him, and the chant ceased. Now the

auditorium was filled with dark forms that drifted in like smoke through the open roof and the windows, assumed human shapes and knelt upon the floor. The chanting recommenced and grew louder and louder as the priestly form arose and, turning, raised its hands to heaven as if invoking a blessing. The kneeling forms in front bent lower and lower until they were level with the floor. The chant ceased and there came a sound like the rush of a hurricane, a mighty shriek rent the air, and I must have fallen senseless, for I knew no more!"

Attention has been elsewhere called to the bar between the limbs as an insignia of priesthood or strong medicine.

The figure here represents a practitioner of more than ordinary ability, who is taken in the act of exhorting the world of sinners to flee from the wrath to come. Above him is an elaborate representation of the heavenly home of the spirits of the blessed, the separate mansions being plainly indicated. The small figure in the upper left-hand corner is the mummified remains of one of those unfortunate beings who neglected, while on earth, to provide for his spiritual welfare, and now suffers the torment of surveying a felicity that he cannot enjoy. The attachment to the heavenly city, which has the appearance of an ordinary key, is the all-seeing eye of the Deity who has provided the delectable mansions and watches over the welfare of their inhabitants.

Where Did the Fathers Get the Means?

It has been asked again and again, where the missionary fathers obtained the means to build such structures as those we find at San Xavier and Tumacacori, and the belief is general that they derived considerable wealth from working the mines. The records, however, show no income from this source, so far as we can learn, and from this it might be inferred that the popular belief is unfounded.

We can readily see, though, why the mining operations of the Fathers were not recorded. The King of Spain assumed that he was entitled to all the mineral product that the officials had no use for, and if the Fathers wished to derive any profit from mining, their operations had to be conducted secretly.

We do not for a moment doubt that they availed themselves freely of nature's treasures, and that the noble edifices, whose ruins we behold to-day with admiration and wonder, were built in great part from the product of clandestine mining operations.

The missions also raised live stock in large numbers and cultivated the lands extensively, but these resources can not alone account for the disbursements.

This is a battle scene, and depicts a mighty warrior in the very act of vanquishing his foes. While he sustains his trusty bow with one hand (which, being his left, suggests contempt for his adversaries), he chivalrously urges the fear-stricken host to yield them prisoners and save effusion of blood. The trembling wretches (observe the two figures below) throw up appealing arms and beg for mercy. The fact that they are so paralyzed with fear as to be unable to fly is ingeniously indicated by the omission of their organs of locomotion. The character between the outstretched limbs of the warrior is a fallen foe, his defunct condition being cleverly emphasized by the insignificance of his appearance and lack of human attributes. This is a spirited composition and must have immortalized the artist.

THE PIONEERS.

The soldier, marching at his sovreign's call—
The cannon, belching at a living wall—
An empire rising on a kingdom's fall—
These found no state!
But they, who dared the dangers of the wild,
Leaving their homes and kindred far behind;
With dreams of future glory unbeguiled,
Seeking alone to benefit mankind—
These found a state!
And millions, yet unborn, shall hold them dear,
And bless the memory of the Pioneer.

Only a few centuries ago, Columbus resolutely grasped a world, though opposed by the ridicule and sneers of Christendom; Cortez and Pizarro conquered kingdoms and empires, and enriched Europe by their chivalry and prowess; great armies flocked to the standards of DeLeon, Narvaez and DeSoto, laughing, in their enthusiasm, at all obstacles and perils.

"It was," as Irving says, "poetry in action; it was the knight-errantry of the Old World carried into the depth of the American wilderness; indeed, the personal adventures, the feats of individual prowess, the picturesque descriptions of steel-clad cavaliers, with lance and helm and prancing steed, glittering through the wildernesses of Florida, Georgia and Alabama, and the prairies of the far West, would seem to us mere fictions of romance did they not come to us recorded in matter-of-fact narratives of contemporaries, and corroborated by minute and daily memoranda of eye-witnesses."

Then there were scores of others, mad with will and energy and romantic aspirations, breasting a hundred crushing storms and conquering a thousand incredible obstacles in their resolute marches through unknown wildernesses, and among treacherous and implacable savages.

The pioneers of Arizona were animated, not so much by romantic enthusiasm, as a steady purpose to subdue the wilds to the purposes of civilization, and make them theirs. Their chivalry was the rough-hewn honesty of the frontiers, which maintained inviolate the sacred principles of free government. Conscious of ultimate victory, and foreseeing the day when civilized homes would form a living chain from ocean to ocean, they eagerly sought the vanguard; they were Americans and aspired to be, as they should be, the first in everything that conduces to the grandeur or welfare of their country. There was no vain glory in their march, no steel-clad cavaliers, with lance and helm and prancing steed—no dreams of Fountains of Youth or El Dorado. They sought a new field for their irrepressible energy, the opportunity to found a new commonwealth, and they were as brave a body of men as ever attempted to found a civilized state.

Never in the history of the world did man have to contend against as formidable a foe as did the Arizona pioneers. Harassed on all sides by the relentless Apache, cut off from civilization by the desert plains of New Mexico and California, they lived a life of constant warfare and privation, a few determined men against hordes of savage foes.

To recount their hardships, the scenes of bloody strife and savage ambush, is not within our power; they are recorded in the unwritten history of Arizona. Many of these hardy settlers fell victims to Indian cunning, and the finding of a few bleached bones in after years was all the record left of their taking off. Their ranks grew thinner and thinner as the years rolled by, but still they persevered in their purpose to make Arizona a home for their race.

All over Arizona there are found to-day remnants of the dauntless band enjoying the glory of successful achievement. Gray-bearded and bent, perhaps, but still hearty old fellows, and foremost in everything that tends to carry their good work along. Out of their ranks come men fitted for every public duty. They are among our best citizens and prosperous business men.

They have seen the territory transformed from a desolate waste to one of the most fertile lands on earth; they reflect on the past, see through the dim years scenes of strife and hardship where now reign peace and prosperity, and with the dew of recollection in their eyes cry, "Advance, Arizona!"

The First Pioneers.

In the year 1824, a party of 100 hardy and adventurous frontiersmen set out from Kentucky upon a trapping expedition to the headwaters of the Arkansas river. After many romantic adventures in New Mexico, the party dispersed, but a few of the boldest spirits undertook to reach the Pacific coast. They spent one winter at the headwaters of the Gila river, and the next spring trapped down the river to its confluence with the Colorado, where Yuma now stands. Here they embarked their canoes on the turbid waters of the Colorado and drifted down to the Gulf of California, whence they crossed the peninsula to San Diego. Here two of the party, Sylvester Pattie and his son, James, were imprisoned by the Mexican commandant, and after a long and cruel confinement the elder Pattie died. His son James was then released and found his way back to civilization. He published a book giving an account of his adventures, although Col. Poston claims that he was never heard of after his release from prison.

The late Pauline Weaver, a trapper from Tennessee, was at the Casa Grande, near the present site of Florence, in 1832. He was the original discoverer of the famous gold placers near Antelope peak, about forty miles south of Prescott, and remained in Arizona till his death a few years ago.

During the Mexican war, a number of scouting parties and messengers passed through the Territory, and a few trappers, guides and hunters of American and half-breed birth penetrated the country.

Felix Aubrey made several trips into the Tonto basin, the Gila valley, the Santa Rita mountains and other portions of the Territory; Capt. John Moss penetrated the cañons of the Great and Little Colorado, and Capt. Adams explored the same river.

The cession of Arizona and New Mexico north of the Gila river was consummated February 2, 1848, and the balance of these Territories was acquired under the Gadsden Purchase, December 30, 1853.

The United States Boundary Commission (1849-51) was the first body of Americans, known to the country at large, which entered the borders of Arizona.

After the discovery of gold in California, the valley of the Gila became a highway for the more daring and adventurous of those who, from 1849 on, made their way across the continent by the southern route.

In 1854, Col. C. D. Poston landed at Navachiste, in the Mexican state of Sinaloa, and explored the country as far as Sonoita, and thence through the Papago country to Gila Bend, Fort Yuma and San Diego.

In August, 1856, an exploring party outfitted at San Antonio, Tex., and after a perilous journey reached Tubac, and proceeded, under the direction of Col. Poston, to examine the rich silver mines reported to exist in the mountains.

In the latter part of 1857 the San Antonio and San Diego semi-monthly stage line was established and this continued until the following year, when the Butterfield semi-weekly line was put on. The usual time was twenty-two days from St. Louis to San Francisco, and until the outbreak of the civil war there was not a single break in the service.

Among the earliest scientific explorers were Prof. W. P. Blake and Herman Ehrenberg. Prof. Blake was in charge of the government geological survey, and is now director of the Mining School of the University of Arizona. Ehrenberg remained in the Territory while Poston visited Washington City, and until he returned across the plains in 1856 with a colony of Americans and Germans, who settled in Tubac and engaged in mining.

Col. Poston attracted capital to the extent of nearly a million dollars in the development of mines, and the exploitations were in a promising condition when in 1861 the exigencies of the civil war caused the withdrawal of the Federal troops and the temporary abandonment of the Territory.

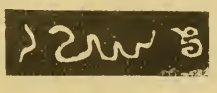
In 1857 efforts were made to secure civil government, but were unsuccessful.

On February 27, 1862, a company of Texan guerillas, under Capt. Hunter, reached Tucson and took possession of the place and held it until the advance of the California column in May warned them to retire.

The Apaches, ignorant of our domestic disturbances, believed that they had stampeded the white population and evinced a desire to take possession of everything. It was perilous to go a mile away from the walls of Tucson, and outlying settlements were entirely abandoned.

Union rule was reëstablished in 1863, and on the 24th of February of the same year the organic act creating the Territory of Arizona was passed.

Its history since then has been one of incessant struggle with the savage Apache up to their absolute overthrow less than a decade ago. Since then it has become more prosperous every year, and now claims a population of 100,000 and all the elements necessary to entitle it to become a sovereign state.



Here the artist aimed to depict action, and, in a measure anticipated the invention of the kinetoscope. The figure to the right represents a serpent coiled, but ready to spring forth on the slightest provocation; the middle one is the same serpent in the act of striking the indefinite object on the extreme left

The writer puzzled over this picture for more than an hour, oppressed with an idea that it meant more than appeared on the surface, and as he was about to despair of penetrating its occult significance, the whole truth was revealed.

It is marvelous; astonishing! All that the observer has to do is to fix his gaze upon the picture, then a rapid movement of the head from side to side causes the coiled serpent to unwind and dart against the object to the left.

How many generations of Indians stood before this wonderful achievement and wriggled their heads, before modern science discovered this method of enabling eager millions to witness a prize fight without going to see it?

Old Times.

The following panegyric on the men who pioneered the wilderness of Arizona is from the pen of the Hon. Chas. A. Shibell, county recorder, who came here in the early part of 1862 and has been prominent and distinguished in public life ever since:

"My thoughts instinctively surge back to the old times, when our days were days of watching and our nights seldom brought us rest. It travels back, and the mile-stones are the bloody graves of innumerable friends and companions who fell by the merciless hand of the Apache. Their names will now have no more significance to the world than those on the headstones in the cemetery of a strange land, but to the pioneers who shared their hardships and live to glory in their memory, each once familiar name will reveal the stirring scenes they shared. In those days we were a band of brothers. The strife for honor, position and wealth carried little weight with us and friendship meant all the word implies; and even yet, though selfish career may, seemingly, drive us apart, yet, when the occasion requires, the bond of fealty asserts itself, and the love between us proves as strong as in the early days, when a simple 'good-bye' meant an eternal farewell. Such were, and are, the pioneers, and their deeds cannot perish from the earth. They live in spirit and speak to the hearts of future generations, noble examples of what man will do for man. The pioneer, schooled in the passive as well as the active virtues, disciplined in patience, fortitude and self control, learned the highest lesson this life can teach—the cheerful readiness to try again."

The First Flag.

There were probably several American flags in Arizona before this particular one, but this had a right to unfurl its glorious colors to the breeze.

Arizona had just become attached to Uncle Sam, like a patch to his coat tails, by virtue of the Gadsden Purchase, and the Americans residing in Tucson celebrated the occasion by hoisting Old Glory under the shadows of Sentinel peak. The Mexican garrison evacuated Tucson in February, 1855, and hauled down the Eagle and Cactus as they marched away. The Americans quickly lashed several long mesquite poles together for a flagstaff and unfurled the starry banner to the breeze and saluted it with rousing cheers as it rose.

The commander of the Mexican troops demanded that the flag be lowered until his men had reached the frontier, but the Americans declined to obey, and being well armed and determined to maintain their right to fly the flag they loved, the matter was dropped.

There are two different accounts of the affair which can not be harmonized. One is to the effect that a real flag was furnished by Edward Miles, and the other, equally as well substantiated, claims that no flag could be obtained and three handkerchiefs of the proper color were knotted together.

The Crabb Expedition.

Among the more interesting and exciting episodes of the ante-bellum period was the ill-starred Crabb expedition.

In 1856, Gandara was the legally elected Governor of the Mexican state of Sonora, and as his political opponent, Ygnacio Pesquiera, could not manipulate the returns, he raised a revolt. Henry A. Crabb met Pesquiera and proposed to him to bring down a force of 1,000 armed Americans to emphasize his demand for a recount. Crabb's reward was to be a strip of territory across the northern frontier of Sonora, and the armed Americans were to be considered as colonists, the assumption being that a sufficient number of ingenious artisans would be introduced to transform the instruments of death into peaceful implements of husbandry.

Crabb found no trouble in gathering his colonists in California, and at once marched via Yuma to Filibusters' Camp, on the Gila. The main body stayed here to recruit the animals, while the leader set forward with an advance guard of 100 men.

Meanwhile Pesquiera had settled the Gandara matter, and the Crabb expedition was being used against him by his enemies to destroy the fruits of his victory. Being an accomplished politician, Pesquiera promptly denied any complicity with Crabb, and to effectually establish his innocence roused the State against him, besieged him at Caborca, and after a desperate fight, killed or captured the whole party.

The prisoners were promptly executed, and Pesquiera remitted poor Crabb's head to the City of Mexico as a proof of his intense loyalty to his country and his undying hatred of foreign interference. The main body of Crabb's party, hearing of his death, threw up their commissions and returned to private life.

When the news of Crabb's imminent danger reached Tucson, a party of twenty-seven Americans organized and started to his relief, but arrived too late, and had to fight their way back against overwhelming numbers.

This was found on a stone facing the west, whence we infer that it is a vivid representation of sunset; the artist, with a cunning that strikes us with amazement, adroitly reversing the position of the rays, in order to distinguish it from another masterpiece portraying a sunrise.

The difficulty of distinguishing between these two phenomena, so nearly alike in all respects, has troubled artists of every age, but the untutored Indian, whose name and race are lost to history, offers a solution that our modern artists can avail themselves of without any sacrifice of professional pride.

The First Newspaper.

The first printing press was brought into the territory from Ohio and set up in Tubac, then one of the most important settlements. The editor was Col. Cross, a fire-eating veteran of the Mexican war, who anticipated modern methods of increasing circulation by beginning a series of virulent attacks upon Lieut. Sylvester Mowry.

As the colonel had the only printing outfit in the country, the lieutenant could not retaliate by printing an alleged portrait of his traducer in an opposition paper, and was therefore compelled to send him a challenge, which was accepted.

The weapons were Burnside rifles, and the principals, who stood eighty paces apart, were seconded by Grant Oury for Mowry and John W. Donaldson for Cross. The first two exchanges of shots disappointed both parties, and on the third, Mowry's weapon refused to operate. The code was then invoked in Mowry's behalf and he was accorded another discharge. Col. Cross folded his arms and calmly waited, having probably concluded that if two professional fighters couldn't hit a mark in five shots the chances were good for a miss on the sixth.

Mowry raised his rifle, ably assisted by his second, and after wobbling it around until it covered the earth, took a snap shot at the firmament.

Thus was The Arizonian introduced to the world! But as an advertising scheme the duel was not a success, and The Arizonian failed to flourish. Mowry afterwards purchased it himself and moved it to Tucson, where it was edited by J. Howard Mills, who was also a justice of the peace. Mills soon retired, and in his farewell address to an unappreciative public, delicately alluded to the fact that his derringer could be purchased at less than cost.

How the Territory Was Organized.

Col. C. D. Poston, who is a brilliant raconteur and has a strong bubbling sense of humor, gives in his reminiscenses the following account of the preliminary wire-pulling that led to the organization of the territory:

"At the meeting of congress in December, 1862, I returned to Washington, made friends with Lincoln, and proposed the organization of Arizona.

Oury was in Richmond, cooling his heels in the ante-chambers of the Confederate Congress, without gaining admission as a delegate from Arizona; Mowry was a prisoner in Yuma, cooling his head from the political fever which had afflicted it, and meditating on the decline and fall of a West Point graduate. There was no other person in Washington, save Gen. Heintzelman, who took any interest in Arizona affairs; they had something else to occupy their attention, and did not even know where Arizona was. Old Ben Wade, chairman of the senate committee on territories, took a lively and bold interest in the organization of the territory, and Ashley, chairman of the committee in the house, told me how to accomplish the object. He said there were a number of members of the expiring congress who had been defeated in their own districts for the next term, who wanted to go West and offer their political services, and if they could be grouped and a satisfactory slate made, they would have influence enough to carry the bill through congress.

Consequently an 'oyster supper' was organized, to which the 'lame ducks' were invited, and then and there the slate was made, and the Territory was virtually organized. Towards the last it occurred to my obfusticated brain that my name did not appear on the slate, and I exclaimed, in the language of Daniel Webster: 'Gentlemen, what is to become of me?' Gourley politely replied: 'Oh, we'll make you Indian agent.'

So the bill passed, Lincoln signed all the commissions, the oyster supper was paid for, and Arizona launched on the political sea."

Government Hay in 1863.

Money was easily made when the California volunteers came to Tucson in 1863. Barley brought ten cents a pound and was hard to get at any price.

The quartermaster's office used to be about where the New Orndorff hotel now stands and the scales stood just outside.

On one occasion Billy Bowers learned that the quartermaster was short on barley and that Nick Chambers had all there was in town, about a wagon load. Billy hunted up the quartermaster and contracted to deliver ten loads at a high figure, the grain to be weighed on the scales and then delivered at the corral half a mile away. Being an ignorant frontiersman he didn't want any vouchers or other red tape about the business, and insisted upon receiving cash for each load as it was weighed.

Having arranged these preliminaries to his satisfaction, he began business by borrowing a team from Nick Chambers and the use of his load of barley. Loading it on the quartermaster's scales he received its value and reloaded again. He ought to have taken it to the corral according to contract, but seeing that it was only borrowed he didn't feel that it was right to do this, besides a little more weighing wouldn't hurt it in the least, so making a detour he returned it to the scales and received another payment for it. He was again on the horns of a dilemma. If he took the grain to the corral he was disposing of property that didn't belong to him, and if, on the other hand, he failed to deliver ten loads to the government, he violated his contract. Billy solved the problem by weighing the barley ten times and then returning it to its owner, a trifle the worse for handling but still merchantable. Half an

hour afterwards he was on the road to Tubac and has not been heard of since.

Nick Chambers swore that he was not privy to the scheme, and believed the barley had been borrowed just to give the animals a smell of decent food, but as he was reputed to be a shrewd trader, the popular verdict was against him.

Hank and Yank, as well as others, coined money on hay contracts. If they didn't get two or three heavyweight teamsters on the scales for good measure it was because the scales were fixed otherwise. Up at a camp near Maricopa they built a stone corral with the rocks that came in the hay.

In Memoriam.

The story would be incomplete without a reference to Dr. J. C. Handy, whose untimely death about six years ago appeared to be a public calamity. Dr. W. H. Fennér was for several years associated with him in the practice of medicine and refers to him as a man whose strong character impressed itself on all who met him. His enemies exaggerated his vices, and those who loved him, and they were many, never realized the half of his virtues. He came to the Territory as an army surgeon, but resigned and began the practice of medicine in Tucson. He was principal surgeon for The Southern Pacific Railroad Company from the time the line was opened for traffic until his death. He was active in all public matters and occupied several public positions. He would have led in his profession anywhere, and his reputation here has never been excelled. His death brought sorrow to many a household and even his enemies grieved to see him go.

This is a quadruped, but of what species can not be absolutely determined. The excresences on the head might be horns, but from the appearance of the other end we incline to the belief that the artist had a *coyote* in his mind when he finished his labors.

This is unquestionably a horned toad depicted in the act of walking up a rock to catch a fly, and is a very creditable performance.

The triple serpent was a favorite combination with the rock-carver, and evidently has some esoteric significance. It is scarcely possible that it was intended to represent pictorially the scientific fact that *three of a kind beat two pair*, and yet there is no more probable explanation offered.

Camp Grant Massacre.

In the year 1870 the Pinal and Arivaipa Apaches were placed upon a reservation around old Camp Grant, at the junction of the San Pedro and Arivaipa, about fifty-five miles from Tucson, in charge of civil agents, but these proving unsatisfactory, Lieut. Royal E. Whitman, of the United States Third cavalry, was assigned as agent. Being a thrifty person, he quickly realized the money-making possibilities of his position and left the Indians to follow their own inclination while he pursued his. The Indians soon began to plunder and murder the settlers within a radius of 100 miles, finding succor and protection with the agent, who was applying the same commercial principles in a more civilized manner. The citizens

organized and appealed to Gen. Stoneman, department commander, who was then encamped on the Gila river, near Florence, but he would do nothing and suggested that the citizens should protect themselves. The depredations and outrages continued, and in April, 1871, it was determined to make a raid on the Camp Grant Indians who were known to be the principal depredators. The avenging band rendezvoused on the Rillito opposite San Xavier, under the leadership of the late Hon. W. S. Oury and Jes. M. Elias, and comprised ninety-two Papago Indians, forty-eight Mexicans and six Americans; the eighty-two Americans who had solemnly pledged themselves to be ready at any moment for the campaign being represented by the above insignificant number. A wagon with arms, ammunition and stores was provided by the Hon. J. B. Allen, then adjutant general of the territory, an act of official courtesy that the old general can safely attach his name to at this late date. Mr. Oury took the precaution to send a note back to Tucson addressed to the late H. S. Stevens, urging him to send a party to a point on the road to Camp Grant, with instructions to stop any and all travelers, and without this precaution the raid would have been a failure.

The party started before daylight and reached the San Pedro bottoms on the morning of April 29, where it remained till nightfall. As soon as it was dark the march was resumed, the intention being to strike the enemy's camp at midnight, but the distance had been miscalculated and they did not reach it till the early morning. The attack was so swift and fierce that within half an hour the whole work was ended and not an adult Indian left to tell the tale. Some twenty-eight or thirty small papooses were spared and brought to Tucson. Not a single man of the party was injured, and at eight o'clock on the bright morning of April 30, 1871, the little band breakfasted on the San Pedro, a few miles above the post, with the full satisfaction of a work well done.

This is the portrait of a mighty bowman in the act of perceiving an enemy. The left hand is upraised to inform his followers (so far behind that the artist could not introduce them to the public) of his desire to cope with the foe unaided and alone. The curves of his limbs portray his firm resolution, just as the unusual length of bow proclaims his giant strength. His extraordinary girth shows his importance, and the elongation of the neck indicates the ambitious character of his mind. This is the most striking and successful attempt at portraiture to be met with on the rocks, and in naturalness of treatment surpasses samples of early Egyptian art, which often tire with their absurd conventionalism.

1870 1871.

We are indebted to Mr. Harry D. Foreman, son of the late S. W. Foreman, who made the first survey of Tucson, for copies of letters written by his father in 1870-71, and regret that lack of space prevents us from giving them to our readers entire.

In one letter he speaks of the richness of the Santa Cruz and other valleys south of Tucson, and says: "The soil is very rich; the Santa Cruz, a large, rapid stream, with many tributaries, winding through valuable timber, grazing and agricultural lands. Four or more men, armed with revolvers, accompany one team when plowing, and the plow is adorned with a gun strapped to it. Every house is a fort and, notwithstanding these precautions, stock is frequently stolen, and scores of graves attest the fell work of the savage.

"On Monday a small band of Indians stole some stock from a ranch twelve miles south of Tucson. A small party went in pursuit and recaptured the stock, after killing one Indian.

"Yesterday the Indians attacked McKensey's ranch, on the San Pedro, murdered him and drove off his stock. A party of settlers followed and overtook them, and found them reinforced by about 100 from the military feeding posts. In the fight that followed, H. C. Long, Owry Chapin and Egeard Unter were killed, and the Indians escaped."

An Historical Brief.

The first American store was opened in Tucson, March 10, 1856, by Mr. Solomon Warner, who is still living. The population of the town at that time was about 400 Mexicans and fifty Americans. The first stage coach ran out of Tucson in 1858, and in February, 1859, the first newspaper published in Arizona made its appearance at Tubac, under the name of the *Weekly Arizonian*, with Col. E. Cross as editor. The Territory of Arizona was regularly organized December 29, 1863. The Southern Pacific railroad reached Tucson, April 15, 1880.

The city of Tucson was duly organized in 1871, with the following officers: S. R. DeLong, mayor; Hiram S. Stevens, treasurer; W. J. Osborn, assessor and recorder, and Samuel Hughes, W. W. Williams, C. O. Brown and Wm. S. Oury, councilmen. Of these, Hiram Stevens and W. S. Oury have passed away, but the rest are with us.

In this picture we are introduced to some of the mysteries of ancient religious rites.

Here is a priest, or medicine-man, with one hand on his hip to express confidence in his own powers, while with right arm upraised he exorcises the evil spirit indicated by the figure to the left. The spirit is troubled and anxious to go, but is held by the priest's magnetic glare until the audience (not shown in the picture) is convinced that there is no deception

It has been suggested that the bar between the limbs is an effort to realize a Masonic apron, but there is really no reason for supposing that the ancient Indian carried any Masonic secrets about him.

Like the ancient Phœnicians, this primitive race immolated false prophets on their own altars, and in order to prevent them from absconding, when their exorcisms failed, shackled their limbs. This is a practice that could be revived to advantage among our own people.

The Cochise Outbreak.

The man who was most instrumental in bringing about a treaty of peace with the Chiricahua Apaches was the Hon. Fred. Hughes, to whom we are indebted for the following account of the cause of the first outbreak, in 1860:

Capt. Richard Ewell, called "Baldy Ewell," who afterwards distinguished himself in the Confederate service, was succeeded in command of Fort Buchanan, at the head of the Sonoita valley, sixty-five miles from Tucson, by Col. Morrison, with two companies of the Seventh infantry.

A short time after he assumed command, a settler in the Sonoita valley, named Ward, came to the Fort and complained that the Indians had stolen some of his horses and mules and a Mexican boy whom he had adopted. Lieut. Bascom was sent with a detachment to Apache pass, one of Cochise's strongholds, with instructions to recover and bring back the stolen property and the boy, if they could be found. Bascom had just graduated from West Point, and was as deficient in judgment as he was totally ignorant of Indian character. He met Cochise at the Pass and stated the object of his mission, but the chief, who was then at peace with the Americans, replied that neither the stock nor the boy had been taken by his band, but he would try to discover where they were and, if possible, have them returned.

Next day Bascom invited Cochise and his brother and two nephews to a "big talk," and they came at the appointed time without suspecting any evil. The Lieutenant informed his dusky guests that he would hold them as hostages until the property and the boy were delivered up, and consigned them under guard to a tent. Upon realizing that he was a prisoner, the Apache chieftain sent forth the war cry of his tribe and, drawing a long knife, slashed open the side of the tent and sprang out, followed by his brother. A desperate hand-to-hand struggle with the soldiers then began, during which Cochise received a bayonet wound in the knee, and was seized by a powerful infantryman. The agile chief freed himself from the grasp of his assailant and fled to the hills.

Lieut. Bascom, fearing trouble as the result of his action, retired with his troops to the mail station, of which they took possession.

Next day Cochise appeared and demanded an assurance from Bascom that the prisoners had not been killed. This the Lieutenant refused to give, and Cochise rode off to his people. In the valley they encountered two Americans, named Wallace and Lyons, whom they took prisoners, and offered to surrender in exchange for the nephews of Cochise. Notwithstanding the appeals of the two men, the exchange was refused and the poor fellows were led back to be tortured. Next day another effort to exchange was made, and still refused. The two captured Americans pleaded their sufferings without avail, and at last urged the Lieutenant to order his men to shoot them, so that they might be spared further suffering. To this also he turned a deaf ear and sheltered himself and his men behind the walls of the station. At a favorable moment Lyons, who was a powerful man, tore himself loose from the two Indians that held him and succeeded in scaling the outer wall of the station, when he was shot by the soldiers, who, in their confusion, mistook him for an Apache.

Finding that no peaceful measures would prevail, and to strike terror into the hearts of his adversaries, a rope was thrown around the neck of the remaining captive and he was dragged to death in plain view of his countrymen.

That evening signal fires flashed from the surrounding mountains, and next morning a thousand warriors surrounded the mail station, and if speedy reinforcements had not arrived from Buchanan and Breckenridge, not a man would have escaped.

The captured Indians were taken to a point near the western end of the pass and there hanged from the limbs of an oak tree, and the troops returned home, having begun the first act in the drama of blood and rapine which desolated Southern Arizona for nearly fifteen years.

After the breaking out of the civil war all the forts were abandoned, and Arizona left without military protection until the arrival of the California column, in June, 1862.

Mr. Hughes was acting Indian agent for the Chiricahuas after peace was concluded by Gen. Howard, and received the above particulars from Cochise himself, which he afterwards verified from other sources.

He describes Cochise as a remarkable Indian, who would have made his mark among men had his lot been cast in a more fortunate sphere of life. In conversation he was very pleasant, and to his family and intimate friends he was more affectionate than the average white man; he showed nothing of the brutish nature generally attributed to him. It was astonishing to see the power he had over this brutal tribe, for while they almost worshipped him, no man was ever more feared, his glance being enough to squelch the most obstreperous member of the tribe. He admired courage even in his enemies, and has been known to weep over the body of a brave American, and regret the necessity for his death.

His death was deeply lamented by his tribe, and the best informed Americans regretted it, for they knew that it meant a revival of warfare.

Cochise Liked Whiskey.

Just about the time that Gen. Howard concluded a peace with the Apache chief, Cochise, and appointed Capt. Jeffords agent, Mr. H. C. Hooker, of Sierra Bonita, received word that some Texas cattle were being held for him on the Rio Miembres. All his horses and mules that had not been stolen by the Indians were unfit for service, and learning that Capt. Jaffords was with Cochise in the Dragoon mountains and had two fine mules, he rode over with one of his men to see if he could borrow or buy them. Upon reaching the Indian camp he was seized and carried before the renowned chief, who, through an interpreter, informed him that Capt. Jeffords had gone; the mules, however, were there, but he could not have them. He had some animals of his own that he would trade off for ten gallons of good whisky, and asked Mr. Hooker to give him an order for that amount of whisky on a well-known merchant in Tucson. Mr. Hooker was curious to know how he could get the whisky on the order. "Umph!" said Cochise, "I have among my people those who can go anywhere and clothes to suit the character they play, from a soldier to a Mexican vaquero!" Mr. Hooker refused to give the order, but was allowed to depart in peace.

Indian Signals.

During the Indian troubles in Arizona it was a common remark that "the soldiers never found the Indians till the Indians found them," and the truth of this was sustained by the facts. Not all of the critics, however, knew that this was the result of the perfect system of signalling used by the Indians, by means of which they were able to telegraph information from Mojave to the Rio Grande. Every mountain peak was a sentinel post, each prepared with bundles of hay arranged in such a manner that when one end of a bundle was lighted the smoke bore it up in the air like a balloon. The code was based upon a numerical system, and the signals were understood and repeated from peak to peak and the movements of the troops faithfully reported.

Footprints on the Sands of Time.

Whether the archæopteryx macroura was a bird-like reptile or a reptilian bird, is a question that may worry geologists, but is never likely to give any of our readers a headache. It will, however, interest them to learn that at some time in the Jurassic period they walked on the shores of unlocated lakes or seas in the vicinity of Tucson.

There are no seas here now, and the only lakes we have are too modern to cover the case, but the footprints of the reptilian bird or the evoluting reptile are found imprinted on the stone slabs with which some of our sidewalks are veneered.

We do not, however, wish the reader to infer that Tucson is so old that the Archæ (for short) walked its streets in the Jurassic or Triassic periods.

These footprints show strongest on the slabs in front of the office of the Tucson *Daily Citizen*, and forcibly suggest the advantages to be derived from advertising with both feet if you wish to make a permanent impression on the sands of time.

This has been taken for a landscape and a kitchen interior, but it is neither. It represents the Deluge, as plain as rock-painting art can do so, and opens up a vista of possibilities that dazzle and bewilder the mind of the savant.

The double canoe at the bottom is the ark, the artist being limited by his experience, in portraying the great vessel. He realized that Noah and his family would keep out of the rain and hence does not attempt to

represent them. The apparent tadpole is a sea serpent disporting on the distant wave, and the candelabra in the center is the tree of life rising out of the waters, while the unfinished base suggests the uncertainty of land tenure. The spectacled fire iron on the right is the great god of storms smiling with both eyes upon the new-rising earth. Even the dove is not forgotten entirely, his head appearing above the ark.

If we had any doubts as to the origin of this people, this picture should settle them. It has been claimed that every primitive people had its tradition of a deluge, but this is the Deluge of Noah and no other.

A Typical Spanish-American.

An erroneous impression prevails that our Spanish-American citizens are a drawback to our advancement; that they are ignorant, bigoted and unprogressive. While this may be true of their lowest class, as it is of our own, they average well in intelligence and the highest quality of citizenship. We reckon among them many of our best people, some of whom have attained eminence in public life and enjoy the respect and confidence of all classes. In the early days they stood shoulder to shoulder with us to repel the murderous Apache, and now, in the time of peace, they keep step in the march of progress.

Among those who have become distinguished, the Hon. M. G. Samaniego stands in the front rank, being identified with every progressive movement that has taken place during the last thirty years. During the Indian uprisings, his business of freighting for the government military posts exposed him to constant loss and peril. He was a member of the jury empaneled to try the actors in the Fort Grant massacre. He was the first assessor elected in Pima county, has served four terms in the city council and four on the board of county supervisors, represented the county in the legislature and was appointed one of the first regents of the university. At present he is a member of the board of supervisors, regent of the university, trustee of the Catholic cathedral, a leading member of the Spanish-American society, and charter member of the Philarmonic club. These distinctions are cited merely to show our reader the high esteem we entertain for our Spanish-American citizens, and this is no solitary instance of our appreciation.

Mr. Samaniego suffered much from the Indians in early days, and lost his brother at Willow Springs, Graham county, as late as 1881, together with all his freighting stock. His energy was undaunted by reverses and he made new opportunities until he acquired more than he had lost. He is now one of our largest property owners and is interested in stock raising and other industries. As proprietor of the principal stage lines in the county, running regularly to Oro Blanco, Arivaca, Nogales and Mammoth, he is in close touch with our resources, and pronounces them unapproachable. As a prominent member of the Society of Arizona Pioneers, he links the past with the present and shares the glory of the upbuilding of the future commonwealth of Arizona.

Thirty Years Ago.

On the 1st of January next, Tucson will be entitled to free mail delivery under the postal regulations, and this fact has reminded Mr. W. W. Williams, the reliable real estate and insurance agent, of the postal facilities thirty years ago. Mr. Williams was a member of the old firm of Lord & Williams, one of the pioneer merchandising and banking establishments of Arizona. In 1864 there were no regular mail facilities, and private letters only reached here through the courtesy of the army officers, and when there happened to be room in the mail pouches for them. Mr. Williams instances as a case of rapid transit a letter mailed in New York, October 3, which reached Cerro Colorado May 31 of the following year. The mails were carried by express riders, who were often stopped by Indians, and on such occasions everything, including the mail carrier, went to a dead letter office not established by the government.

Transportation was equally precarious. Merchandise was brought overland from California or by steamer to the Gulf, up the river to Yuma, and thence by wagon to Tucson, at a cost of twenty cents per pound in gold, greenbacks being worth only forty-five cents. Goods from the East by ox-wagons through New Mexico cost about the same, and required from ten to twelve months for the trip. Nevertheless, the old firm of Lord & Williams carried a stock of nearly $200,000 and controlled the chief trade of Southern Arizona and Sonora.

Further Particulars.

In 1867, Tucson was a typical frontier town, with a population of about 1,300, of whom not less than 1,000 were Mexicans. The chief industry was the furnishing of supplies to the government at exorbitant prices. The paymaster arrived every six months and for a short time money was plentiful. Gambling was a recognized profession, and the money was concentrated so swiftly that in a few weeks currency disappeared from general circulation and vouchers took its place. The code of honor was supreme, and a common danger made men fearless and resolute. A man's life was not safe a mile from town, for the Apache claimed to rule the suburbs absolutely. Every inducement was held out to them to preserve the peace, and they made many promises of good behaviour, none of which they kept longer than was necessary to gather a new stock of ammunition and recruit their forces.

This condition of affairs culminated in the so-called Fort Grant massacre, further particulars of which have been furnished us by the Hon. Sam. H. Drachman, who reached Tucson, September 4, 1867.

"I had a contract to deliver 1,000 tons of hay at old Camp Grant when the trouble began, and had a great deal of it stacked when peace was arranged, and the Indians signaled to outlying bands by setting my stacks on fire. The murdering of settlers went on just the same, however, and the people of Tucson were finally so aroused that they determined to take matters into their own hands.

William Oury, since deceased, wrote to me to call upon Lieut. Whitman and request him to stop giving passes to the Indians. I did so, but no attention was paid to my request, and I so informed Mr. Oury.

The result was that a force of 150 men, Americans, Mexicans and Papago Indians, was quietly organized and marched to Old Fort Grant, arriving there at the break of day. Negotiations were opened with the Apaches by a deadly fusilade that made 193 good Indians, and there being no more to negotiate with, the party retraced their steps to Tucson.

As soon as the authorities at Washington were informed of the 'massacre,' an official was sent out to prosecute all concerned. Warrants were issued for the majority of the participants and they were brought to trial. The trial lasted thirty days and resulted, as might have been expected, in a verdict of 'Not Guilty,' the presumption being that the Apaches had committed suicide.

This sudden retribution brought peace to Southern Arizona for a number of years, and struck terror into the heart of the cowardly Apache."

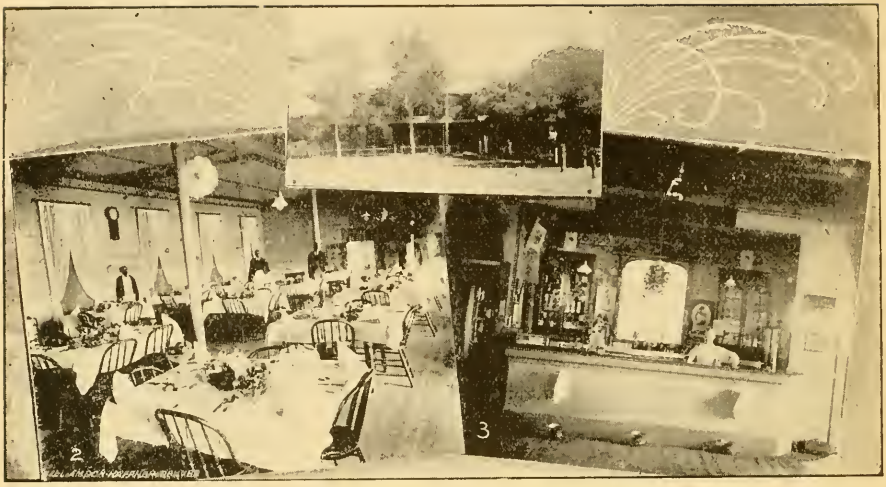
Prices in 1878.

In 1867 there were about half a dozen stores in Tucson, well stocked with all kinds of merchandise, but the prices were not the popular ones of to-day by any means, for it took from three to twelve months to replenish the stocks.

Hon. Sam. H. Drachman gives us some quotations on staple articles, as follows:

Coal oil, $8 per gallon; sugar, 75 cents per pound; coffee, $1.50; common soap, 50 cents a bar; calicoes, 50 cents a yard, and other goods in proportion.

The advent of the railroad changed all this, and at the present time eastern prices generally prevail.



SAN XAVIER HOTEL: 1. Side View.
2. Dining Room.
3. Bar.

Here the Weary Rest.

A sarcastical philosopher, who had traveled extensively, remarked that, "Any one can run a hotel," because he found that nearly everyone tried to do it. We know, however, that the business calls for the possession of rare abilities and long experience, and only a few really achieve success in it. While we can not compete in size and style, or even in prices, with the Eastern hotel, the traveler who visits Tucson will find ample and pleasant accommodation.

The San Xavier hotel, at the depot of the Southern Pacific railroad, has everything to recommend it, and the proprietor, Capt. J. H. Tevis, is one of the most genial hosts that ever lived. He came to Arizona in 1857, one year before the overland stage began to run; commanded the first regiment of rangers raised in Arizona, and had charge of the perilous station at Apache pass. He founded the town of Teviston (Bowie station), and has been actively engaged in mining, merchandising and hotel-keeping for all the years he has been here.

He assumed charge of the San Xavier, May 22, 1897, and with his accustomed energy, entirely refurnished the capacious dining room, and made other changes that add materially to the comfort and elegance of the establishment. The hotel is situated on the highest point of the city and commands a fine view of the pine-clad Santa Catalinas and Santa Ritas, and an almost endless vista of undulating mesa, from the balconies.

The accompanying views will give the reader a better idea of the hotel and its situation can can be conveyed in words.

Life is Pleasant

AND

Here are Treasures of Health.

1. Sabino Canyon, near Tucson.
2. La Ventana, Summit of Sta. Catalina Mts.
3. Silver Lake, near Tucson.

Oh, bear me away to that favored clime,
Where Life reclines on the lap of Time,
And you watch the smiling years roll by,
While you list to the gentle lullaby
Of zephyrs that play with the bright sunbeams,
And the flowers that bloom in that Land of Dreams.

The Temperature in Arizona.

In bulletin No. 20, of the University Experiment Station, the question of Temperature is so thoroughly covered that we make no apology to our reader for reproducing it almost entire.

In any inquiry regarding Arizona the question first raised is that of temperature. The widely circulated tales of the would-be humorists have done more than all else to give Arizona the name of being uninhabitable. Generations of actual residents will have passed away before the harmful effects of these thoughtless tales wholly disappear, and the knowledge secures general recognition that this region is not the desert it has been represented.

The simple thermometer does not measure temperatures as felt by animal life. We may term the reading of an accurate thermometer the *actual*, and the sensation of heat or cold as felt by the higher orders of animal life the *sensible* temperature. Neither of these is a measure of the other, but the humidity of the air must be considered in connection with the actual temperature. The reputation of Arizona has long suffered from the prevalent ignorance on this point. Records of maximum temperatures enable comparisons to be made which appear unfavorable to Arizona, and lead to the belief that the heat of this so-called desert region must be almost, if not wholly, unendurable.

No Muggy Weather.

Everybody knows something about that condition of the weather which is variously termed "sultry," "close," or "muggy," the result of a combination of heat and moist air, especially noticeable in the states bordering upon large bodies of water, such as the Gulf of Mexico or the Great Lakes, and it is conspicuously absent from Arizona.

No Sun-Stroke.

In the dry air of this territory "sun-strokes" are unknown, while in the Mississippi valley and the states lying eastward, prostrations from heat and fatalities are numerous whenever the thermometer indicates 90° F. or upwards. At many places along the sea coast where the humidity always remains near the point of saturation, a temperature of 85° brings excessive discomfort, and exertion or exposure to the sun is extremely hazardous, but men and the lower animals perform in safety their customary labor beneath the cloudless skies of Arizona under the highest temperatures ever experienced here. The dry air induces exceedingly rapid evaporation of the abundant perspiration, thus keeping the body at a comparatively low temperature. As a matter of course, the supply of fluid must be maintained, hence the great thirst so often experienced by travelers, and the imperative necessity for an adequate supply of drinking water.

An amount ranging from 15° to perhaps 30°, according to the humidity, should be subtracted from the records of maximum actual temperatures during the hot season in Arizona to indicate the sensible temperatures.

The University of Arizona, near Tucson, is situated in latitude 32° 14′ N., longitude 110° 53′ W., elevation 2,430. Its climate is fairly representative of a large portion of Southern Arizona, which must always remain the chief agricultural portion of the territory. For purposes of comparison of the climate of Southern Arizona with that of other localities, ten stations of the weather bureau have been chosen, which form, with Tucson, a continuous circuit of the United States, starting from Florida, crossing the Gulf states to the Pacific ocean; thence eastward across a more northern tier of states to the Atlantic ocean, at Boston:

MAXIMUM TEMPERATURES IN 1893.

Temperatures Compared.	Elevation above Sea.	January	February	March	April	May	June	July	August	S'pt'mb'r	October	Nov'mb'r	Dec'mb'r	Annual.
STATION.	Feet.													
Jacksonville, Fla.	43	72	89	84	90	93	95	100	95	96	88	84	77	100
New Orleans, La.	54	72	72	79	84	90	94	94	93	95	86	80	79	95
Galveston, Tex.	42	70	72	78	80	86	90	92	91	92	86	79	74	92
University of Arizona, Tucson.....	2,432	73	80	92	91	98	107	107	102	99	92	84	76	107
Los Angeles, Cal.	330	84	79	88	84	90	90	89	92	90	91	86	88	92
San Francisco, Cal. ..	153	60	69	78	72	74	90	74	72	72	79	74	72	90
Denver, Colo.....	5,287	64	60	80	77	87	94	96	92	89	81	71	65	96
St. Paul, Minn.	850	33	37	51	72	79	91	98	97	94	82	74	40	98
Chicago, Ill.	824	46	46	69	84	83	85	94	95	95	81	67	58	95
Albany, N. Y.....	85	45	51	52	72	88	95	92	94	79	75	58	54	96
Boston, Mass..	120	53	53	58	68	88	94	91	93	80	79	68	57	94

From an inspection of this table it will be seen that the maximum winter temperatures of Southern Arizona are very nearly the same as those of the Gulf states. Those of summer are considerably higher, but taking into account the relative humidity at the same stations, the summer climate of Arizona is far less trying than that of the states bordering on the Gulf of Mexico. Thus the June temperature of 107° at Tucson with relative humidity at only 22 per cent. is far preferable to that of any other city in the list with temperatures of 85° to 95° and humidity at 65 to 83 per cent.

A Bear Hunt in the St. Catalinas.

On the 1st of November I went up to the pinery east of Mt. Lemmon, prepared for bear. After wandering about, climbing crags and following the windings of dark ravines for three hours, I decided to rest, and reaching the brow of a steep declivity, I threw myself at full length under the overhanging branches of a fine maple, whose glistening leaves, now tinged with gold, evoked vivid memories of my eastern home.

Accidentally glancing across the narrow valley I saw a big black bear with two well grown cubs. The bear saw me at the same instant, and looked towards me with such an expression of confidence in my good intentions that I could not at first find it in my heart to shoot. But the hunting instinct prevailed over finer feeling, and aiming at her breast, I fired.

The beast jumped forward through the brush into the valley and up the hill toward me, and I was so overcome with nervousness that I never thought of firing again, but sought safety on a limb of the tree, about twenty feet from the ground, leaving my rifle on the ground. The bear came within a few yards of the tree, took a good look at me, and sniffing contemptuously, returned to her cubs.

Her departure restored my courage, and its evident contempt made me angry to blood-thirstiness. I descended from my perch, seized my rifle, and advancing to the edge of the valley sighted my game frolicing up the mountain side with her cubs.

This time a cub got in the way of the bullet, but the trio continued their journey with apparent unconcern. I followed the trail for another shot until darkness approached, when I returned to camp.

Next morning I saddled a *burro* to carry the bear when I killed it, and striking a faint trail of blood, followed it a mile along the summit until it was lost in a tangle of wild blackberries and ferns.

While I debated which direction to take I heard a low groan, and taking a position under a low cherry tree I waited for the groaner to appear. In a few moments the bear came forth, followed by her cubs; she held her nose high in the air, and smelling her tormentor of the previous day, rushed towards me. I fired a shot at her breast and evidently hit her somewhere, for she jumped up and then fell back and rolled down the hill, the cubs scrambling after in comical amazement.

I looked over and saw the animal sitting up, with the cubs about her crying pitifully. I was merciless though and fired another shot, which met an adverse current of air somewhere and sizzed away from the mark.

Then I beheld the strangest scene I ever witnessed. Forgetful of her own sufferings the bear caught her cubs and drew them to her breast as if to protect them; one of them pulled away and she reached for it again, and hugged both to her breast like a human mother, while her great strange eyes seemed to appeal to me to spare them.

So striking was the appeal that I could not find it in my heart to try to hit her again. I untied my *burro* and returned to camp, feeling that I had nearly committed a murder.

Believes in Out Door Life.

Dr. Mark A. Rodgers, a member of the American Climatological Society, has issued a pamphlet on "The Climate of Arizona," which covers the subject fully, and for the benefit of our readers we subjoin a few extracts from this publication:

"My experience has impressed upon me the necessity for out-door life in the treatment of pulmonary tuberculosis. In order that the patient may live continuously in the open air for a period of several months, or, for that matter, for a year, or several years, a climate is required which is continuously warm and dry. Such a climate the United States does not possess, but the nearest approach to it is in Arizona.

"Physicians rarely send their patients to the arid regions during the summer, and this I consider a great mistake. The patients should be sent to the arid regions so soon as there is evidence of infection from the tubercle bacillus, and should be made to remain there until they are well, or until it is apparent that the case is hopeless. For those who can stand warm weather, I think the summers much better than the winters, for, owing to the heat, everybody is compelled to sleep out of doors, and this I consider more important than any other feature of the climate.

"If they have the means to travel about, there are many places of interest which they can visit, and thus add greatly to their pleasures. For example, during the hot months of summer, the patient may visit many of the most interesting and remarkable natural wonders which the world possesses, among which may be mentioned the Grand Cañon of the Colorado, the Wind Carved Rocks, the Petrified Forests and Cliff Dwellings. The numerous ruins, which are found all over the territory, with their hieroglyphics and pictoglyphics, will repay investigation by the student of ethnology. In the country surrounding Flagstaff, in the San Francisco mountains, is the largest unbroken pine forest in the United States, and here the sportsman will find deer, antelope and bear, not to speak of small game and fish."

Need Not Go So Far.

But the health-seeker need not go so far for a summer outing. The wooded ranges of the Santa Catalinas and Santa Ritas, within a few miles of Tucson, afford all the recreation he needs in the way of moderate temperature, hunting or scenery.

In the southern part of the county, in the Huachuca and Patagonia mountains, is some of the finest scenery in the world, with hunting and fishing to the heart's content. If he does not care to camp out, the city of Nogales has good hotel accommodations and a summer temperature that can not be excelled, with mountain and forest to its very limits.

No Insects or Reptiles.

"During the greater part of the year the inhabitants of Southern Arizona sleep out of doors. It is difficult at first to induce the 'tenderfoot' to sleep in the open air. He has visions of tarantulæ, scorpions and centipedes, which are disquieting. In the course of time, however, he learns that these insects are so rare as to be curiosities, and that their sting is to be dreaded not so much as that of a California flea. The sensational Arizona tales of poisonous reptiles and insects, of murderous Apache raids, and of cow-boy and desperado shooting scrapes have no modern foundation in truth.

"Many physicians in the East order patients to California for the winter, apparently with a view of sending them to a dry climate. The relative humidity in southern California is as great, and in some instances greater, than that of the Atlantic coast, and many of the best physicians in California regularly send their tubercular and asthmatic patients to Tucson. California is a beautiful country, but the fogs which come in from the sea, and the emanations from the vast irrigated regions, make it far inferior to the inland desert regions for phthisical patients. I think it may be assumed as a general rule that wherever there is irrigation there is a high degree of relative humidity, and patients suffering from pulmonary phthisis should never be sent to an irrigated district. Indeed, some of the California physicians have declared that 'irrigation and malaria go together.'

Better than California.

Tucson is First.

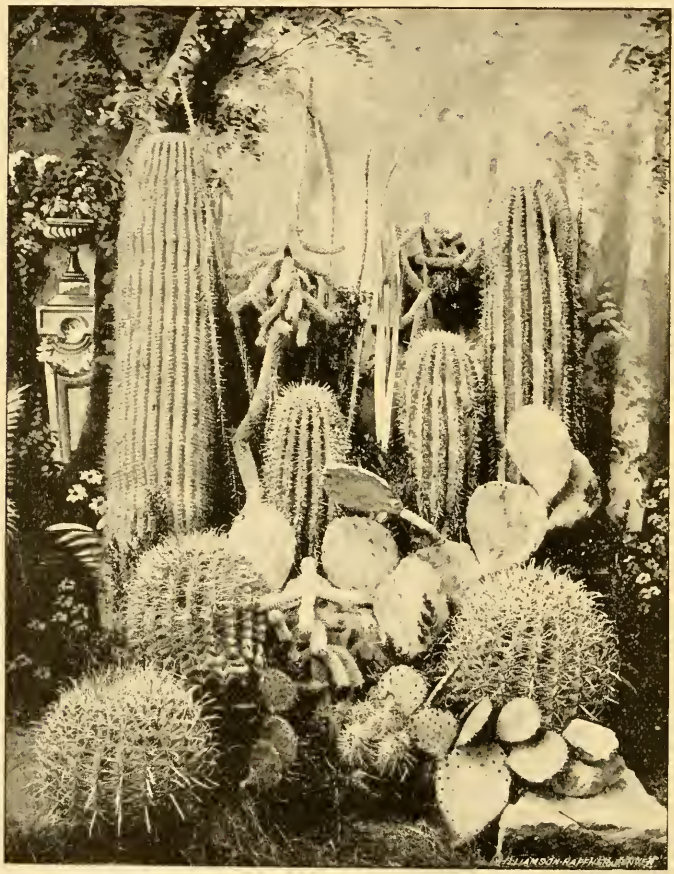
"The city of Tucson has, in my opinion, advantages as a health resort which can not be equalled anywhere in North America. I know of no locality where such a moderate winter climate and such a low degree of relative humidity are combined with the same latitude and altitude. It is no longer considered imperative to send tubercular patients to an altitude of 5,000 feet, or over. In fact, clinical experience has proven that more frequently patients require to be sent to an altitude of less, rather than more than 3,000 feet. The altitude of Tucson is 2,400 feet, and that seems to be amply high for all but the most exceptional cases. The city is situated in a basin near the underground Santa Cruz river. It is completely walled in by massive mountain ranges. To the north is the Santa Catalina range; to the east, the Rincon; to the south, the Santa Rita, and on the west, the Tucson. Each of these ranges has an altitude of 5,000 feet, at least. Mount Lemon, the highest peak of the Santa Catalinas, has an elevation of 10,000 feet, and Mount Wrightson, in the Santa Ritas, reaches an altitude of nearly 11,000 feet.

"The scenery at Tucson is as impressive as anywhere in the Rocky mountains, and the gorgeous sunrises and sunsets beggar description.

"During the nine months, October to June, inclusive, 1894-5, there were but twenty-five cloudy days, and nine of these were in one month. Some idea of the transparency of the atmosphere may be had when I state that, at midday, and with the unaided eye, I have seen Venus when it was but ten degrees east of the sun.

One of the Cured.

"The writer feels kindly toward Arizona. One year ago, in Philadelphia, he was attacked with two hemorrhages from the lungs; he had a bad cough, and was losing flesh rapidly. On the advice of a distinguished member of the Climatological Society, he came to Tucson. Since that time he has gained twenty-six pounds in weight, and now is a well man."



Cactus Garden.

A Marsupial Fish.

Among the curiosities of the Santa Cruz valley is a rare fish that is found in the river in large quantities. In size it is insignificant, but the manner in which its young is produced is contrary to all precedent. Unlike others, it does not spawn, but incubates its young after the manner of the mammals. We do not know whether or not any scientific observation has been made of this species, and could not credit the fact until we proved it by personal investigation.

Do Trees Grow in Arizona?

After referring to the fact that our best authority on American forests credits Arizona with the possession of the largest unbroken forest areas in the United States, Prof. J. W. Toumey, professor of botany in the University of Arizona, gives some particulars in a recent publication, as follows:

"The Yellow Pine (*Pinus ponderosa*) is the only species of Arizona pine covering large areas suitable for lumber. It is a beautiful tree, frequently five feet or more in diameter. Although this pine is the most abundant and widely distributed of our forest trees, the lumber products of a number of other species are of some importance, but on account of the more inaccessible regions in which they grow they have not, as yet, been utilized to a very great extent. The yellow pine is usually found at an elevation between 5,500 and 7,500 feet, and at a conservative estimate it occurs in quantity sufficient to provide, at the present rate of consumption, for at least a century.

"Above the zone of yellow pine occur species of white pine, fir, balsam and spruce, while the trees in the zone immediately below are mostly nut pines and junipers, intermingled with a variety of deciduous species.

"The Mesquite is the most important of the deciduous trees of Southern Arizona. It provides fuel over large areas where other trees are meager and scattered. The wood is about as heavy as oak, and the fuel value is equal, cord for cord, to hickory. Its durability, exposed to the weather or submerged in water, is very great, hence it is of considerable value for fence posts and other similar uses.

"The foliage, and more especially the ripened pods, contain a high percentage of nutriment, and make excellent forage. This tree has a greater variety of uses than any other American tree.

"The general impression is that Arizona has but few species of indigenous trees. Quite to the contrary, however, the number of our native species is excelled by but few states in the Union. Among our indigenous trees are nine species of pine, ten of oak, three of palo-verde, three of ash, besides maple, walnut, sycamore, locust, alder, elder, fir, cypress, balsam, spruce, cherry, arbutus, juniper, and many others of less importance.

"A number of our trees grow to considerable size—black oak, four and one-half feet in diameter, walnut four feet, while some of our northern pines and firs are even larger.

"There is but little question that when the people of Arizona become fully awakened to the value of a number of our native trees and shrubs for ornamental purposes, a much more extended use will be made of them. They will be grown in preference to the much less hardy plants from other places.

"Our native trees and shrubs will grow with a limited amount of care and a minimum supply of water. Introduced species grown for ornamental purposes, as a rule, require more care and water than many can afford to give them. As a single illustration, our native white ash (*Fraxinus velutina*) is a most valuable shade tree for general purposes, being of rapid growth and of but little expense."

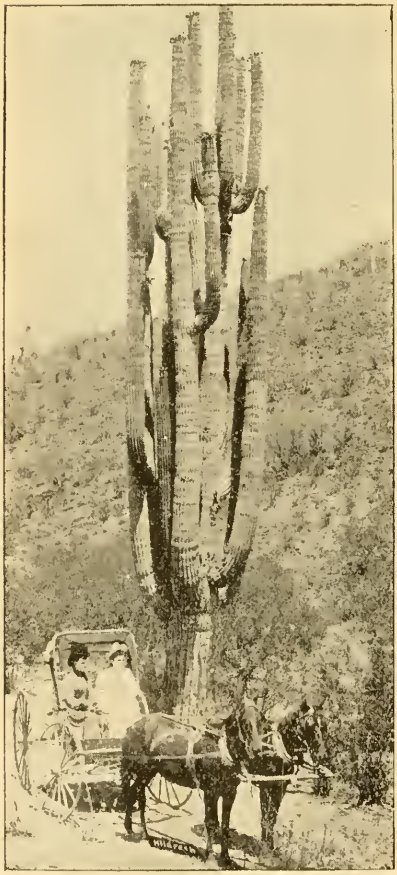
The Flora of the St. Catalina Mts.

From the grassy mesa we see, on the mountain tops the tall pines, and below the foothills, brown and purple, the brilliant verdure of the cottonwood and sycamore, relieved by the darker foliage of the mesquite and ironwood. If we take a ride up the cañons we may see juniper, oak, ash, alder and walnut, but we catch no glimpse of the glorious flora hidden in the wilderness of mountain gulch and crag above us. He who would revel in nature's prodigality must seek the higher spots, and

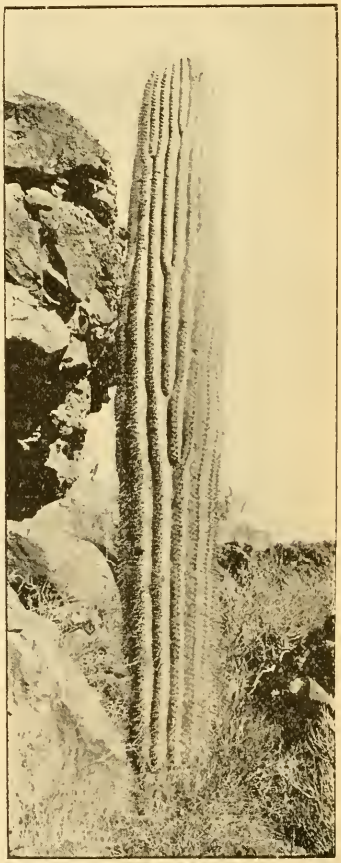
there, where the pine growth begins, he will find, from March to August, a flora that will amaze while it delights, bringing with it refreshing memories of climes lighted by the sunshine of youth, and associations severed perhaps forever.

He will find six varieties of the graceful campanula, a number of rhododendrons, and in early April the sweet, red-cheeked strawberry of the wild woods, and luscious blackberries hiding in luxurious grass, reaching above his waist.

Last spring, at an elevation of 3,000 feet, I counted no less than twenty varieties of blooming plants within a circle of less than ten yards in diameter, forming, with the ferns and grasses, a floral carpet that nature's loom never excelled for beauty, while the surrounding trees were decked with evergreen ivy.



Giant Cactus.



A Young Giant.

Should Stay With It.

We have a number of letters and interviews to the same effect as the following. They emphasize our statement that, in order to get the best results from our climate, a continuous residence is necessary when the disease is deep-seated: "For several years before coming to Southern Arizona I had been afflicted with a severe cough, and my lungs were badly diseased. I traveled extensively without finding more than temporary relief, but began to improve permanently as soon as I reached this warm, dry climate. Within six months the cough left me, but for several years afterwards would return as soon as I changed from this climate to California or the Eastern states; but now, after a residence of eight years, I consider myself completely cured and can live almost anywhere.

"My experience is the same as that of nearly every person who has given this climate a fair trial, but any one who expects to eradicate an organic disease like consumption, which is the result of years of neglect or heredity predisposition, in the time covered by a return ticket to Arizona, had better stay at home and save his money for funeral expenses.

"It is an admitted fact that no medical treatment has yet been discovered that will cure pulmonary consumption. The only cure is that of climate, and in Southern Arizona the warm, dry atmosphere acts as a healing balm to the bleeding, diseased lungs, while the pores are kept open, and the impurities of the system, that in harsher climates make a combined attack upon weak lungs, are allowed to escape through the skin.

The Only Cure is Climate.

"To secure a cure the patient must expect to undergo privations and often hardships. Luxurious hotels are not what he needs; an out-of-door life is necessary. The patient also needs something to constantly divert his attention from the disease. In the hotels he meets people suffering like himself, and the effect is bad for all.

"Traveling and seeing new scenes divert his mind, while exercise insures a good appetite, and the pure, warm atmosphere affords a curative application to his lungs as often as he breathes.

"While I am aware that, should Southern Arizona become a resort for invalids afflicted with pulmonary diseases, it would be the means of adding much profit to the business of the country, this consideration does not influence me to make this statement. This class of unfortunate people has enough to contend with, without being lured away from home and friends by our holding out false hopes; but the universal relief given to persons afflicted like myself, who came here to lengthen their lives, warrants what I have said."

The Reason Why.

The opinion of a physician who has practiced here for the past fourteen years is worthy of attention, and we have that of Dr. W. H. Fermer to present to our readers. As surgeon for the Southern Pacific company, in addition to a large private practice, he has valuable opportunities to observe the course of disease and the effects on classes and individuals. He characterizes the general health of the permanent residents of Tucson as excellent, the largest percentage of deaths being among the poorer class of Mexicans, who are unable or unwilling to obtain medical attention or observe the commonest rules of hygiene. The general health of the city is good. Contagious diseases, when they appear, run an unusually mild course, and this is accounted for by the somewhat rarified air, containing a very small percentage of moisture, and the great amount of sunlight, conditions that do not conduce to the life and growth of the various disease-producing bacteria. In the individual the activity of the skin is increased, the circulation augmented, respiration quickened and deepened, the appe-

tite improved; and the ability to spend many hours in the open air adds a tonic, the effect of which is surprising to those who have not spent a winter on these elevated and dry plateaus.

In the winter season, even though the sunshine is hot, the air is cool and invigorating, because the heat absorbed by the air from the sun's rays depends upon the quantity of aqueous vapor in the air. This is well illustrated by the fact that while our summers are long and hot, no one suffers in health, because the air, being dry, absorbs a small portion of the heat. When the thermometer reaches a figure that would appal a resident of New York, men and animals labor in the sun without suffering, and disease is held in abeyance; in fact, so long as the air is dry and the sun shines brightly, good health prevails. Experience proves that the climate of Tucson is specially efficacious in cases of pulmonary phthisis taken in early stages, and in cases where there is only an inherited tendency; in exhaustion from overwork, chronic catarrh and all diseases of the respiratory organs; in diseases of the stomach and kidneys, and asthma, when not of organic origin. The climate is not a specific for organic disease of the heart or blood-vessels, nor for rheumatic and gouty affections, although such cases have been relieved.

The best effects of our climate attend a residence of long duration, the patients availing themselves of the moderate summer temperature of our elevated localities during the extreme heat. Only by the observance of this rule can a permanent cure be insured.

The Cereus Engelmanni.

The flowers that bloom in the spring, tra-la! have been celebrated in song and story, but the flowers that bloom in the winter have not been so honored because they are too scarce to attract attention, and yet there is one which is immortalized in the saintly calendar of Mexico, and which the humble devotee in the wilds of Arizona justly treasures as a memorial of faith rewarded and hope renewed. It is known to botanists as the *Cereus engelmanni*, and bears an edible fruit of an acid flavor; the spines all fall off when the fruit ripens, being evidently designed by nature to protect the flower and embryo.

A variety of this species is credited with participation in a miracle, and if the reader will promise to refrain from attempting to pronounce the names given, we will endeavor to convey the traditional account of the founding of the Sanctuary of the Virgin of Guadalupe, the patron saint of Mexico.

The Virgin of Guadalupe.

Juan Diego was a poor, converted Indian, born in the pueblo of Cuautitlan, who earned a modest living in Tolpetlac, whence he made frequent journeys to Santiago Tlatilulco to drink in the inspired words of the holy Franciscan fathers.

One day, while crossing a hill called Tepetlyecaczol, covered with thorny cactus and sharp-edged stones, he heard music so singularly sweet and harmonious that he stopped, ravished with delight, and sought to discover whence it proceeded. Then he saw a rainbow of iridescent colors, and in the midst of it a white, transparent cloud, and reclining on the cloud a lovely female, clad in the richest Indian garb, such as was worn by the Aztec princesses.

Moved by an irresistible impulse, Juan Diego approached the divine figure, which addressed him in his own tongue, informing him that she was the mother of God, and desired that a temple be erected there to her honor. She promised protection and comfort to all who might come to worship at the shrine, and commanded the enrapt Indian to tell the bishop all that he had seen and heard. Diego bowed his head and promised to obey, and then the celestial vision disappeared.

It was only after much difficulty that the poor Indian obtained an interview with Juan de Zumárraga, the bishop of Mexico, and imparted all that he had seen and heard, but the bishop, naturally enough, refused to credit the story, and Juan Diego returned home disconsolate.

But the Virgin was determined that the temple should be built, and stopped the Indian every time he crossed Tepetlyecaczol, until the poor fellow, despairing of being able to carry out her wishes, avoided the hill. This, however, was of no avail, for she appeared to him again and bade him ascend the hill and gather the flowers he would find there and bear them to the bishop.

He obeyed and bore the beautiful and fragrant flowers to the bishop, who, being unacquainted with the floral possibilities of the country, was amazed to see wild flowers in the depth of winter, but his amazement turned to reverent fear when the Indian let down the points of his apron to display the flowers and revealed on the coarse *manta* the face of the Holy Virgin, painted as no human hand could paint it. He and those with him fell prostrate before the miraculous sign, and when they recovered their equanimity, immediately proceeded to found the sanctuary which is to-day the most loved and revered in Mexico.

The Road-Runner.

The *corredor de camino, churrea* or road-runner, a species of pheasant found in Southern Arizona, is so called from the fact that it is often seen running along traveled roads.

It is remarkably tame, and its life is respected for the good work it does in the destruction of reptiles. Finding a snake asleep, a couple of these birds will gather the prickly leaves of the *cholla* and surround his snakeship with a circular hedge of bristling thorns, and then arouse him with shrill cries and fluttering wings. As few snakes will cross even a horsehair rope, a hedge of cactus thorns is as impassable as a twelve-foot wall, and the *churreas* know this. They tantalize the imprisoned serpent from their position of safety until he finally becomes exhausted, when they quietly jump over and administer the finishing touches with their long, tough beaks.

Silver Lake.

One of the Tucson pleasure resorts is known as Silver lake, about one and one-half miles from the city, and owned by the Hon. Fred. Maish. It is a delightful place to pass an afternoon in summer. The lake comprises an expanse of clear water twenty acres in area, fringed with groves of trees. There is a fine hotel on the edge of the water, and bathing and boating facilities are provided for visitors. In addition to the other attractions is a fine carp pond, where the lovers of the piscatorial science can lie in the shade of sighing trees and pass the pleasant hours, and fill their baskets with unfortunate carp. Mr. Maish's residence is comfortable and pleasant, surrounded with orchard and garden, and reached through an avenue of stately sycamores.

Agua Caliente Hot Springs.

Among the naturial curiosities and curative agents attached to our wonderful climatic and scenic advantages, the hot springs of *Agua Caliente* are preëminent.

At the invitation of Mr. Phil. H. Chambers, the genial proprietor of Agua Caliente, we visited his place, in order to verify for ourselves the glowing accounts we had heard. The ranch is situated at the foot of the Santa Catalina mountains, about sixteen miles from Tucson, and reached over as fine a road as can be found in the new-road districts of the East. It is 160 acres in extent, most of the area not occupied by buildings and corrals being under cul-

tivation. Oranges here reach perfection, never being touched by frost, and Mr. Chambers is confident that even the banana will do well. In March some of his alfalfa reached a height of four and one-half feet, and he had samples in June seven feet in length. There is no tropical fruit grown in the United States that will not reach perfection here, and this peculiar condition is due entirely to the peculiar natural conditions produced by the unseen forces of nature beneath the surface.

The hot mineral springs bubble out of the solid rock, and at present supply about fifty miner's inches of water of a temperature of 100°. It is clear as crystal but strongly impregnated with minerals, among which are magnesia, sulphur, glauber salts, iron, etc. An analysis made at the University of Arizona shows these waters to contain excellent curative qualities in cases of rheumatism and kidney complaints, and all those who have tried them claim that they are the most efficacious in the country.

Lack of capital has hitherto prevented Mr. Chambers from fully carrying out his ideas of development and ornamentation, but the demands of the new Tucson will attract wide-spread attention to the advantages of these springs, and all the rest will follow.

The Lily of the Valley.

A lily grows in the Santa Cruz valley that in beauty and fragrance surpasses any cultivated plant of the same species, and is purer in color than the well-known calla.

If plucked while budding and its stem placed in water impregnated with salt, it will continue to grow until it reaches perfection, and then after blooming a few days draws its petals towards the stamen and goes to seed.

The Mexicans call it *El lirio del valle.*

The Woolagoo.

While its name might convey the idea that this creature is a formidable relic of some past geological age, it is really an insect no larger than a grain of wheat, and as harmless as a butterfly, so far as man is concerned. He is an interesting study to the entomologist, and his methods of doing business are full of suggestions to the politician, as well as to the Reform Club.

First selecting a proper location for his enterprise, he bores a hole in the ground, throwing up a circle of earth of exceeding fineness, about an inch in height, and then covers himself with a mantle of pulverized real estate at the bottom of the hole. Curious insects ascend the breastwork, and the treacherous earth, moving like a quicksand, hurls them headlong to the bottom, whence no effort can raise them. If the intruder has a bigger pull than the woolagoo, an abject apology is offered, and he is requested to get out the best way he can, otherwise he is disintegrated for commissary purposes. We do not know how the woolagoo evacuates the hole when he desires to emigrate, but we presume that this emergency is provided for somehow. As a last resort he could fill it up and get out on top.

La Ventana.

We are indebted to Prof. J. W. Toumey for the view of La Ventana (or Window), an opening in the rocks on one of the highest peaks of the Santa Catalinas, which can be seen in the early morning from Tucson. The professor kindly furnished us with a description of the trip of his party to La Ventana, and we regret our inability to publish it in this issue.

THE FIRST INTERNATIONAL CONGRESS OF MICROBES.

(Compiled from the official report by N. H. M. for this book.)

At Last.

Since 1850, the progressive microbe element has tried to organize for the purpose of opposing the unscrupulous army of vivisectors, bacteriologists, pathologists and chemical dynamiters seeking their extermination, but the difficulty of gathering the widely scattered colonies appeared insurmountable until lately. The modern facilities for inter-communication and the dissemination of disease made it possible to unite, and on the initiation of the Boston Society of Progressive Tubercle Bacilli, the matter was definitely decided, and the 1st of May, 1897, fixed as the date of meeting.

From the early part of April, representatives arrived from the four quarters of the earth, and entertained themselves by raising the death rate pending the formal opening of the congress.

On the date fixed, the doors of the Globe theatre, of Boston, were opened wide to the visiting hosts, who filled the vast auditorium from floor to dome.

An eloquent address of welcome was delivered in a rich husky voice by Tubercle Bacillus, to which Cholera Coma, from Asia, responded in neatly chosen words. After a few remarks by several distinguished visitors, Bacillus of Diphtheria reviewed the history of the persecution of his race, and called upon the congress to take strong measures against those who sought its destruction. In order to get at the sense of the assembly, he offered the following resolutions:

The Resolutions.

Whereas, We, the duly authorized delegates of the Pathogenic Bacteria, find ourselves harassed and persecuted by unscrupulous people; and

Whereas, We desire to assert our rights to the peaceful pursuit of happiness, and are too weak to enforce them;

Resolved, That this congress do petition President McKinley, the great American protector, to abolish all quarantines, boards of health, hygenic, bacteriologic and pathologic devices and combinations, and give us that freedom of life and liberty to which we are entitled by reason of our existence, and furthermore, by arbitration, reciprocity, bond issue or treaty, secure for us in other lands the same inherited privileges.

Resolved, That this congress considers vivisection in the interest of so-called medical science a barbarous practice, a relic of the dark ages, a wanton destruction of animal life and a blot upon our civilization.

The resolutions were adopted enthusiastically and a recess taken till the following day in order to give the visitors an opportunity to make some interesting experiments in the lower parts of the city and become better acquainted with each other.

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The Second Day.

The president announced that the order of the day would be to listen to the experience and warnings of prominent delegates, and introduced Cholera Bacillus as the first speaker.

After making several comparisons, Mr. Cholera was of the opinion that Mecca at certain seasons, and along the Ganges at all times, were the finest health resorts he had seen. For business purposes he preferred the Mohammedan religion to any other.

Mr. Bubonic Pest, though a stranger to most of those present, spoke as if he knew them all. He had comfortable quarters in Asia, but would like to make a business trip around the world. So far his enemies

had failed in their efforts to overthrow his particular views on the Malthusian doctrine, and some had perished in the attempt.

Yellow Fever Bacillus despised cold weather and would not think of living at an altitude of over 2,400 feet. He felt most at home in the West Indies, although he made flying trips to different parts of the world to introduce his remedies for the affliction of life.

Typhoid Fever preferred cold, moist climates, where the people objected to pure air and water. He thought that the use of these ought to be legislated against, as they were always injurious to microbic advancement.

Bacillus of Rabies rather liked warm weather and was attached to dogs. He could do pretty good work as long as he was not molested by any Pasteur butchers.

La Grippe liked to operate where extremes meet, and his practice was most successful when a sharp, cold wind followed warm days. He had circled the world several times and had found few enemies to oppose his triumphal march.

Others followed, each vaunting his achievements and noting some evil tendency that might hereafter affect their work, but the jewel of the session was the closing address of the president:

* * * * * * *

The Closing Address.

"Friends, for years we have labored, and to-day we see our hopes realized, for here are assembled the representatives of our race from all over the world, to vent their grievances and unite in an effort to restore our ancient immunity from persecution, when the dying thousands, appreciating our work, hailed us as the angels of the Almighty sent to purge them of their sins.

"Many among you have done more brilliant work than I; my dear friends, Cholera, Bubonic Pest, Yellow Fever and La Grippe, have marvelous campaign records, but theirs is the eruption of the volcano, the shock of the earthquake, which last but a short period and only reappear after long intervals. My work is continuous, though slow, and I can say, without vanity, that 20 per cent. of those relieved of mortal ills owe the result to me. For this reason men call me the King of Microbes, and the weight of honor means accumulated peril. I have been attacked by land and sea, with sword and artillery, with syringical fire and medicated water; they have sought to suffocate me with gases and brought their miserable batallions of science against me, but so far I am almost untouched. Like their poor, I am always with them, and with the assistance of Scrofula, Syphilis, Pneumonia and La Grippe my success has been great.

"It is unnecessary for me to mention in detail all the numberless assaults that have been made upon me in the last few years. Every day new mischief is brewing, but I still survive.

"I do not vaunt my immunity, nor claim that I can preserve it for ever. There is danger for us all, and it behooves us to unite our experience and effort, by gatherings like this, to combat the modern innovations.

A Bad Climate.

"In my travels, brethren, I have found a spot where none of our race can prosper. Our children who are born there become emaciated and perish, and none of us can stay there long and live. I refer to Arizona, and especially to Tucson, whose peculiar climate is the most fatal on earth. Worse still, there will be a dozen sanitariums there in a few years, filled with our regular customers, who will not only improve, but absolutely recover. Think of it! Incredible as it seems it is true, for on a late visit there I found many whom I had marked for

my own, who laughed in my face with a long, loud, sonorous tone that caused me to shiver with horror.

A Diabolical Plan.

"There is only one way to prevent our customers from seeking this obnoxious climate. Tucson means death to us and our children, and to save them and ourselves we must use diabolical arts. We must hold them back until the last moment, then let them go and die there. This will discredit the place!

"No one must be allowed to go until we have a firm grip of him; fill their minds and the minds of their relatives and friends with delusive hope; suggest pressure of business, loss of time and money, especially *money*, for most people love it better than life; in fact, anything to induce delay, for delay gives us absolute control. Let our watchwords be *'Down with Tucson, the enemy of microbes, and long live procrastination!'* "

A Summer Resort.

We have elsewhere called the attention of the health-seeker to the desirability of remaining in Arizona the whole year if he wishes to get the best effects of climatic treatment, but as the heated term may be too severe, he can find refuge in the cooler mountain resorts without losing any advantage.

The climatic conditions are most happily realized at Oracle, situated at an altitude of 4,500 feet, near the southern boundary of Pinal county, and forty miles north of Tucson, with which city it has daily stage and mail communication. The stage route lies along the west side of the Catalina mountains, making a graduai ascent from Tucson of 2,000 feet. To the north and west stretches an undulating plain, sloping northward to the valley of the Gila, and on the south to the valley of the Santa Cruz. Close to the southward rises the rugged range of the Santa Catalina mountains whose peaks reach an altitude of 10,000 feet.

The foothills of the Catalinas and the adjacent mesa are covered with live oaks (*quercus emorgi*), whose growth afford picturesque and pleasing view, as well as a refreshing shade.

Combined with the climatic features which characterize Arizona in general, Oracle enjoys special advantages arising from its unique topographic environment.

The roads of the district are smooth and excellent for driving or horse-back riding, and for those interested in hunting there are multitudes

1. Balance Rock, near Oracle.
2. Live Oak, near Oracle.
3. Mountain View Hotel, Oracle.

of quail and doves in the mesas, and in the mountains deer and bear. Cool, delicious water is obtained from wells bored into the granite strata of the mountain ranges, and its analysis attests its excellence for drinking and domestic uses.

Combined with these natural advantages are the comforts and conveniences of civilized life afforded by the two hotels located here, some particulars of which will interest our readers:

The Mountain View.

On a high prominence, and scarcely a quarter of a mile from the Arcadia, is the Mountain View hotel, which, under the personal management of Mrs. Annie Neal, adds greatly to the popularity of Oracle both as a health and summer resort. The hotel is a spacious building, very attractive, and fitted with modern appliances. It contains twelve large, airy rooms, all of them with outside exposures. There are two large halls, extending the full length of the building, fourteen feet wide by forty long. Elegant and spacious verandas extend around the building, and every room is fitted with hot and cold water service. The furniture of all the rooms is of oak, solid, substantial and artistic.

The interior finish of the building is in oak and walnut, and is of elegant design. A large room has been set apart for billiards, and the floor of the room has been constructed with a view to use it for dancing when required.

The kitchen is separate and distinct entirely from the hotel, and a deep well furnishes the water supply, which is copious, almost ice cold, and absolutely pure. The grounds surrounding the hotel are very beautiful, comprising 160 acres, and are charmingly studded with grand oak trees.

Arcadia Hotel, Oracle.

The Arcadia.

The Arcadia, of which Mr. E. S. Dodge is the proprietor, was the first to receive invited guests. Mr. Dodge settled at this place sixteen years ago, engaging in the stock business, and it was probably due to the courteous hospitality extended by himself and estimable wife to strangers that the place first became known as a desirable resort for the health-seeker. He has from time to time built additions to his house, and

neat cottages near by, so that his premises are a veritable little village, where now can be found a coterie of wealthy, cultured Easterners, and, judging from their robust appearance, it is difficult to imagine they were ever in delicate health.

The hotel is well furnished throughout, has an extensive, well-selected library at the disposal of guests, and the table is supplied with every delicacy it seems could be desired, including cream, milk, butter, honey, eggs, poultry, beef and mutton, produced on the ranch.

All Our Own.

The first thing that impresses the visitor to Tucson is the reality of our prosperity and the absence of any inclination to "boom" the place. Whatever we have is ours, for we have made it without assistance from borrowed capital. Every building, every industry and every improvement is the product of our own capital and enterprise, and this, perhaps, accounts for the fact that only within the last year has any real effort been made to provide accommodation for visitors. They had not yet entered into our scheme of prosperity, and we simply attended to our own necessities; the world had passed us by so long that we ignored the world.

New Orndorff Hotel: 1. Piazza.
2. Office.
3. Dining Room.

Then the investor and the health-seeker forced themselves upon us, determined to share our advantages, and for hospitality's sake we had to adopt new principles.

Mr. Chas. DeGroff and his estimable wife took the matter in hand on behalf of the community, purchased the old Cosmopolitan property, which they remodeled, renovated and furnished at great expense, and opened as the New Orndorff.

Mr. DeGroff came here originally for his health and is able to talk about our climate from experience, and sympathy probably influenced him to a large extent in giving Tucson a really modern hotel.

The New Orndorff is well adapted for hotel purposes, being located near enough to the business center to be handy, and not too near to be inconvenient for those who seek a quiet home. There is a beautiful lawn in front, with a row of graceful trees, and from the wide porches the guests have a magnificent view of green fields and purple hills.

It is built in the Moorish style, with a large inner courtyard beautified with trees and lawns. The elegant dining room and the offices range on one side of the square, while the other three are devoted to the accommodation of guests. The rooms are commodious and handsomely furnished, lighted with gas and electricity, electric bells in all rooms, hot and cold-water baths and every modern convenience.

For the convenience of guests, there are finely-appointed parlors, writing rooms, billiard and sample rooms, and the office is one of the neatest in the Territory.

The service and attendance leave nothing to be desired. Both Mr. and Mrs. DeGroff are experienced people, having managed the Old Orndorff house for eight years, and look after their own affairs, and no guest can be with them a day without feeling perfectly at home.

Out of Door Life Recommended.

Dr. J. V. Gaff says: "Men like Samson, David and Methuselah owed much of their strength, vigor and longevity to the climate, which permitted them to sleep in tents and lead an out-of-door life.

A patient confined to the house is in a position analogous to the rabbit confined to a hutch in the cellar; whereas the patient living in the fresh air and warm sunshine has chances comparable to the rabbit running wild.

The requirements of a suitable climate are a pure, warm and dry atmosphere, an equable temperature, not subject to rapid variations, and a maximum amount of sunshine.

The climate of Tucson has all these, and it is possible to sleep out of doors 270 nights of the year and spend 365 days in perpetual sunshine. It is a progressive and prosperous city in which a man may not only find health but a means of livelihood, and live in comfort."

Better than Colorado.

Dr. W. B. Purcell, county physician, observes: "The climate of Colorado has been recommended for its beneficial effects for consumption; my long residence there gave me ample and sufficient opportunity of judging climatic conditions there existing during the summer months. The mountainous portions of Colorado undoubtedly have a beneficial effect on tuberculosis subjects, but I can not recommend Colorado during the fall and winter, as the changes are often severe, becoming raw and cold within a few hours, and as these are atmospheric conditions to be avoided, it would not be advisable to spend these seasons there. Those having a peculiar type of constitution, with a hereditary tendency to consumption, would do well to avail themselves of an opportunity, and come here and remain exempt from disease."

Treasures of Wealth.

Ore Teams.

Ribbed are the hills with silver treasure;
Seamed the mountains with virgin gold;
Coal, and copper and lead without measure—
A wondrous realm of wealth untold.

The Importance of Mining.

Callon, the great authority on mining, writes as follows on the art of mining:

"In an economic point of view, the art of mining constitutes an industry of the greatest importance, whether on account of the value of the products created every year, or an account of their nature, which has rendered many of them objects of first necessity. It has been so since the moment that men ceased to live in the savage state, built themselves dwellings, and began to make tools. In a scientific point of view, it may be said that the art of mining has been the direct cause of the birth and progress of several natural sciences, especially of mineralogy and geology. It is certain that we owe to the working of mines and to the material difficulties, often considerable, against which the miner has to contend, many ingenious, daring and powerful processes which have afterwards passed into the general domain of industry.

"In the middle ages, it was for mines that the first works for husbanding water as a motive power were made, and the first hydraulic machines set to work on rational principles; steam engines were first used in connection with mines, and the first railroad conveyed their products, and the necessities of this industry have been the mother of numberless inventions which have advanced the general welfare."

We have frequently referred in this work to the great future of Arizona as a field for the mining industry, and now propose to give our readers a more particular account of its condition in the country tributary to Tucson.

The Aztec Miners.

There is no question but that the ancient people worked the precious metals on an extensive scale, and all indications point to the fact that the Aztecs operated in this vicinity long before the Jesuit fathers prospected the hills. Within the last few years three old mines have been found in this county, one of them almost within the limits of Tucson. They all show extensive working, and it is evident that immense quantities of good ore were extracted, and one of them is down several hundred feet, with tunnels and winzes and other conveniences. We merely surmise that the Aztecs operated these mines; some other and still more ancient race may have done so, for there is no record of their age, nor can any estimate be made of it.

Mining Near Tucson.

It is impossible to give within the limits of this volume complete detailed information respecting the development of our mines, but we propose to show in brief what has been done and suggest the possibilities of the future.

Taking Tucson as a starting point, we find ourselves almost immediately in the center of a great mineral belt that has hardly been touched, except by the prospector, and only slightly by him, for what is nearest home is the last to receive attention. The whole range called the Tucson mountains is full of mineral—gold, silver, lead, copper and iron, and some of the claims indicate extensive deposits. The close observer will be struck by the number of men, apparently miners, who loaf about our streets, spending money freely for a few weeks, and then disappearing for a season. Many of these own rich claims in the adjacent hills, and are able, with a few weeks' work, to extract enough rich ore to enable them to indulge in a round of dissipation for a varying period. Most of these men refuse to sell their claims or give any information about them. We know of one case where a party of three were offered $100,000 for their mine and refused it, for the reason that their dispositions were such that they could not keep money long enough to do them much good, and the mine was like a bank and honored all their demands upon it.

The Saginaw Mines, Amole District.

As a sample of the mineral prospects in the vicinity of Tucson, we present the reader with the following brief description of the property of The Saginaw Mining Company, situated in the Amole district, nine miles southerly from Tucson.

It comprises the Saginaw mill and eighteen mining claims. The company has begun a systematic development of the main lode of the district and is meeting with much encouragement as depth is gained. The mill is being thoroughly overhauled and fitted with the Wilfley concentrator for a practical testing of the ores and to demonstrate the best process for the extraction of the gold, silver and lead values. When this is done a suitable plant of a capacity of 300 tons daily will be erected, and the mines worked for all that is in them.

The ores of the east and west veins are antimonial-zinc, lead sulphides, with pyrite, and carry uniformly, with the exception of the chutes of very rich ores, about one ounce of gold and twenty ounces of silver per ton. Four of these rich chutes are now known within the length of three claims, and the development work is being done on this rich ore. The ore now being shipped has an average assay value of 112 ounces of silver and three ounces of gold per ton. These ores are found in intrusive porphyries, following the lines of stratification of the thin strata of metamorphic shales, limestones and sandstones, which have a dip of 22° to the north. Seven parallel veins, within a width of 1,200 feet, have been prospected. They are all strong, showing eight to ten feet of ore at the fifty-foot level. The ores are oxidized to a depth of forty feet, when the change to sulphides is sudden and marked.

The surface is covered by wash from the veins, and after three months' prospecting Capt. J. D. Burgess gives his opinion that there is a surface area of seventy acres covered with erosion from one to four feet deep, with a milling and concentrating value of $12 gold and seven ounces silver per ton.

Other Unlocated Veins.

The riches of this district are not confined to the holdings of the Saginaw company, by any means, for from the divide at the head of Robles pass, one drives over many promising croppings (yet unlocated), a distance of two miles to the Saginaw mill, and when reduction works are erected these will all be opened up, and the output from the Amole district, at the very gates of Tucson, will be enormous and probably rival that of any district in the world. The veins are so many, and so wide and rich, that the success of the Saginaw company means the foundation of one of the largest mining camps in the West.

This district, within an hour's drive of Tucson, is an illustration of what is in our midst, and the same indications prevail for twenty miles through the Tucson mountains.

The Sierritas.

Crossing the divide from Tucson by Robles pass, we have behind us the grand Santa Catalina mountains, with the green valley of the Santa Cruz winding, apparently, at its base, and before us the gradually rising Sierritas, a well-timbered range, and prolific of mineral treasures as yet undeveloped. Some wonderful discoveries have been reported from this section, but no organized effort has been made to develop them, and the prospectors have so far had things entirely their own way. The ores are chiefly sulphurets and chlorides, carrying silver and copper. The day, however, is not far distant when capital will test the extent of the mineral deposits which undoubtedly exist, and reap the reward of its enterprise.

The Bavoquivari and Coyote.

The Sierritas are separated from the Bavoquivari and Coyote ranges by a wide area of grassy mesa, known as the Bavoquivari valley, devoted to cattle ranches, the principal one being owned by The Arizona Land and Cattle Company, Alfred Donau, manager.

In the Bavoquivari and Coyote ranges a great deal of prospecting has been done, and some of the more promising veins are being worked in a small way by Tucson people. Copper, gold and silver ores occur, and are generally of high value.

The Cababi.

The Cababi district, in the mountains of that name, in the very heart of the Papago country, contains rich sulphuret ores. Operations in a small way have proved the existence of large bodies of ore carrying gold in considerable quantity. This district was extensively worked when silver was king, and the ore was rich enough to ship a long distance. The development of the veins in which gold predominates has attracted some local attention lately, but capital is needed to prove their real value.

The Quijotoas.

West of the Cababi range are the Quijotoa mountains, famous for the so-called Bonanza mines, from which so much was expected and so little resulted. The steady decline in silver after active work was begun probably accounts for their failure to realize expectations. Mining operations are not entirely suspended, however, for a number of promising gold prospects are being developed in an extension of the range. The Indians have worked the gold placers on the slopes of the foothills for years, and the average product of the precious metal is estimated, by traders who purchase it from them, at not less than 100 ounces per month. The absence of surface water in this section has proved a drawback to placer mining on a large scale. Water, however, in abundance is found in the valley at a depth of 500 feet, and there is a well and pumping plant on the ground that could be utilized by an enterprising company.

Further west to the Colorado river are frequently occurring mineral deposits, principally gold and copper, but on account of their distance from lines of communication they are not much regarded.

The San Xavier Mines.

Returning to Tucson and traveling south, we reach the San Xavier group of patented mines, seven in all. They are located about sixteen miles south from Tucson and about four miles from the Santa Cruz river. There was a large amount of development work done on these properties prior to twelve years ago, the deepest workings being 230 feet. Large quantities of ore were taken out and shipped at a good profit when labor, supplies and freight rates and smelter charges were much higher than at present. These mines have been purchased by Eastern parties, represented by Messrs. Manning & Cameron, which means much for Tucson and the Olive camp. This is probably the most promising group of mines within a radius of sixty miles of Tucson. They have been extensively developed, and all show very large bodies of high-grade ore of lead, silver, gold and copper. The mines have been idle for years, owing to the fact that the stock was owned by people who were wealthy, and who knew the mines were very rich, and believed the money to be just as safe in the mines as in the banks. While they were right, this was of no advantage to the territory. The change of ownership of the properties will prove of great advantage to Tucson and this mining region.

It is the intention to commence shipping the high-grade ore as soon as the mines are in condition to extract the same, which will be in about

six weeks. The lowest grade of ore will be left on the dump to be worked or reduced, as a plant will be erected there to handle the same. In some of the mines lead and silver predominate, copper in others, and in others all four metals are combined.

Olive Camp.

The Helmet Peak Company are working a few men, under Bob Roberts, superintendent, on their group of mines lying about a mile and a half south of the Olive camp, and twenty-two miles south of Tucson. The group consists of four claims, including the once famous Speculation mine, worked some years ago by what was called here The Westinghouse Company. The Helmet Peak Company was organized here a few months ago and represents Tucson capital solely. The work now being done is on the Atlanta mine (formerly the Speculation). At a depth of fifty feet drifting is being done on the lead, which is several feet in width, with a pay streak of ten to eighteen inches, which by sample assay shows sixty and eighty ounces silver, and 40 per cent. lead. Other mines in the vicinity are being worked in a small way.

Arivaca District.

Traveling south and east about forty-five miles, we reach the Arivaca district, one of the oldest mining camps in the territory. It has a delightful situation among rolling hills and grassy plains, a fine climate and abundance of wood and water, but has, so far, been unsatisfactory to the investor, principally on account of mismanagement. The ledges, whether gold or silver, are generally exceedingly rich on the surface, and lead to exaggerated hopes which bring their own defeat. For several years no earnest work has been done in this district, and we are of the opinion that when really competent people get on the ground, it will prove to be a good and permanent mining section.

Oro Blanco District.

Seven miles southeast of Arivaca lies the Oro Blanco district, containing over 100 square miles of country, mineralized, with surface croppings on almost every hill, and, like the Arivaca district, with gold literally in every gulch. The Mexicans have unremittingly worked these placers during the rainy season from the dawn of Arizona history and long before Uncle Sam purchased the territory. The district has been held back by a number of unfavorable circumstances. It is only reached after a long stage ride, and it is only lately that any one has cared to seek gold. Then, too, it has been a victim to the common error of putting up mills before developing the mines, and because undeveloped mines could not furnish ores fast enough, confidence in them failed, or the work was abandoned because the funds originally provided were exhausted in building the mill and none obtainable for procuring ore.

There is not to-day, so far as we can learn, a shaft 300 feet deep in the whole district, and it has produced more bullion to the cubic foot of excavation than any district in the territory. We believe there is no better field for legitimate mining in Arizona, but visitors must not expect to find developed mines here. It is a region of prospects, but they are admirable ones, and ought to interest capital.

The rock formations are generally granite and porphyry, with argillaceous slates, and seem to be everywhere gold-bearing. Gold can be panned from every ravine and gulch, and even on the hillsides, especially when the soil is reddened by decomposed pyrites.

Not only gold, but silver, lead, copper and iron ores are found, but gold is the most generally diffused metal, and follows a broad belt through the

district. The principal mines or claims along this belt are the Oro, Nil Desperandum, Sorrel Top, Tres Amigos, Holden, Gold Bug, McClenahan, Old Glory group, Rob Roy, Golden Eagle and Austerlitz group.

The Oro mine is being operated profitably, under the superintendence of Mr. S. H. Gould, by a Chicago company. There is a ten-stamp mill on the property, which is constantly running on ores averaging from $25 to $50 per ton.

The Old Glory property has a twenty-stamp mill, but has not been operated for the last few months, owing to the inadequate supply of water. The dam is being raised, and when the reservoir is filled by the summer rains, operations will be resumed and possibly ten additional stamps added. The mine is said to be in excellent condition, with an abundance of high-grade ore. Major E. Fechet is the superintendent.

Dr. A. H. Noon, an authority on the resources of this district, is emphatic in his belief that the Oro Blanco section is a rich and inviting field, which is now receiving increased attention, and will eventually add largely to the mineral product of Southern Arizona.

The Pajaritos.

In the Pajarito country, on the Mexican line, is an extensive and rich field of future possibilities, combined with pastoral facilities. The section is also healthy, and possesses some of the most picturesque and beautiful mountain scenery in Southern Arizona. Though silent now, the clink of the hammer and the thunder of the blast will give this district new life; and fortunate will he be who gets there early.

Jalisco District.

The Jalisco district adjoins Oro Blanco on the east, the northern portion being known as the Papillote valley, and is situated a few miles southerly from the Sopori valley. Several locations were made in this district and worked on a small scale several years ago; but the fact that the ores contained copper and silver, and copper ores being then but little sought for, and silver depreciating, caused the district to be abandoned.

Recently, however, Dr. A. H. Noon, C. W. Kempton, M. E., and others have given the district special attention and located and worked several claims, with the result of demonstrating that it is a very promising copper-bearing region. A portion of the district is traversed by dark calc-spar belts cutting through the porphyritic and dioritic country rocks, and in association with or near the spar are outcrops and indications of valuable copper veins running well in silver and gold. Quartzite and eruptive formations, peculiar in character, and geologically and mineralogically interesting, are worthy of special attention.

The group of copper prospects known as the Copperopolis group are very promising locations, the outcrops showing width, length and quality. High-grade ores have been shipped from surface deposits, some of it running as high as 48 per cent. copper and ninety-one ounces silver per ton. Occasional high gold values are obtained also.

The district is very accessible, being only twenty miles from the junction of the Arivaca and Tucson stage lines, and we are confident that it can not long remain unnoticed by capitalists.

Santa Rita Mts.

Crossing the Santa Cruz valley from the junction, we come to the western slope of the Santa Rita mountains, whose pine-clad summits fill the southern horizon of Tucson. These mountains probably contain more mineral and a greater variety than any range in the world, comprising the whole list from gold to coal, from coal to marble and onyx.

The Tyndall and Aztec Districts.

These districts, on the southern and western slopes of the mountains, were exploited with energy and bad management in the early '80s, but the stockholders in the syndicated companies lost hope with the decline of silver, and all work was finally abandoned, the gold values in the ores being no inducement to maintain the reckless expenditures made by the different companies.

Greaterville.

On the eastern slope of the mountains lies the Greaterville district, chiefly known for its enduring gold placers. The camp is on the east side of "Old Baldy," the highest peak of the Santa Ritas, seven miles from the Empire ranch, five miles south of Rosemont, and eight miles from Sonoita on the Sonora railroad. Apart from the extensive gold placers there are numerous ledges of gold, silver, lead, copper, iron, etc. Fine marble and onyx are also found in the district. There are only about sixteen Americans here, the population being chiefly Mexicans and Yaqui Indians who work the placers. A moderate amount of capital here would develop wonders. None of the mines in the district are 100 feet deep, and yet many carloads of high-grade ore have been shipped during the last ten years. We consider this section a good field for careful examination. The placers have yielded largely for over twenty-five years and show no signs of exhaustion, and the indications are everywhere favorable for permanent and profitable ledges. The operations on the placers furnish good business for two general stores, and the small band of Americans, awaiting the arrival of capital to help them out of the rut, form an interesting community.

We are indebted to Mrs. John B. Anderson for information regarding this section.

Rosemont Camp.

The Rosemont camp, five miles from Greaterville, is attracting attention. The property is gold and copper, and the fifty-ton smelter is working to its utmost capacity. There are more than forty men at work. The company is a New York concern, and they are driving their main tunnel straight through the mountain, by means of which they expect to intersect all the veins, which they then propose to work out or develop. This company is prosecuting its workings in a systematic and business-like manner, pay promptly every month, and propose to get what is in the Rosemont in the shortest time possible; or, if it proves the bonanza which present showings indicate, make this one of the prominent camps of the Southwest.

The Empire District.

The Empire district, seven miles south of Pantano station, on the Southern Pacific railroad, has received little attention the last few years on account of the decline in silver. The ores are found in a limestone formation and come in bunches, usually of great richness. Contrary to the general impression, operations have not entirely ceased, and shipments of high-grade ores are constantly being made.

The Patagonia Mts.

Retracing our steps to Greaterville and thence descending the grassy mesa to the Sonoita valley, we find in the Patagonia mountains another vast and undeveloped mineral region.

The Empire Smelting and Mining Company are supplying their 100-ton lead-silver smelter from the old Flux mine and the Hardshell, and, so far as we can learn, experience no difficulty in extracting large quantities of low-grade ore from these properties.

The World's Fair mine is still in bonanza, the ore being extremely rich in silver. A mill was erected on this property under a guarantee that it would work the ore, but it has failed to come up to expectations, and the owner of the mine is waiting for the manufacturers to take it out of his way.

These are the only mines of any importance now being operated in the argentiferous belt of the Patagonia mountains, the Enterprise and the Trench having closed down temporarily.

In the copper belt in the vicinity of Washington camp, the work of development is progressing.

The Duquesne company has an abundance of ore at the 235-foot level, and are now sinking the main shaft, fully determined to make the mine a big producer. Big bodies of ore are opened up sufficient to justify the belief that the company have a large and very valuable property. The grade of the ore is not high, but can be worked on the ground at a fair profit. Some 250 tons of the ore have been shipped to Pittsburg, Pa., for treatment. The working of this ore will determine largely the character of the works that will be placed at the mine. The company is working quite a force of men and, luckily for old Tucson, they draw most of their supplies from here.

Tucson Mining District.

Crossing the range, about sixteen miles toward Nogales, we reach the Tucson mining district, which is probably one of the oldest in Arizona. Less than five miles from the Line City, it is a fine mineral region, prolific in ores containing gold, lead and silver in varying proportions. Ancient excavations show extensive workings by the old Spanish and Mexican miners, and the results of modern prospects prove that it is a rich field for the investor. There is no extensive work being done here at present, but in the near future this section is certain to attract attention. The formation is granite, intersected by diorite dykes, which dykes are invariably cut by the mineral-bearing fissures. Major H. A. Read is carrying on extensive operations in this district. He is now down sixty feet on a five-foot ledge of silver sulphide, carrying a small quantity of gold. The mine is only a hundred yards from the railroad track, with wood and water in abundance.

Santa Catalina Mts.

East of Tucson, in the foothills of the Santa Catalina mountains, there have been some wonderful discoveries of precious mineral. Several of these have been extensively worked, notably in the vicinity of Mammoth, a mining camp near the San Pedro river. The Mammoth Gold Mining and Milling Company has a large mill here, which is now idle, owing to disagreement between the English and American stockholders. It has been a large gold producer in the past, and the signs are now favorable for extensive operations in the future. The Mohawk mines are on a continuation of the famous Mammoth mine, and are owned by The Mohawk Mining and Milling Company, whose headquarters are at Hartford, Conn. This company has pursued a conservative policy in developing its property before going to the expense of erecting works, having, by means of a horse whim, sunk a double compartment shaft 330 feet on the lead, and driven over 1,000 feet of crosscuts and drifts at different levels. The results proving highly satisfactory, machinery for hoisting works and a twenty-stamp mill were put up, and a three-inch pipe line laid to the pumping plant, five miles distant and 700 feet lower. The pump, a Riedler, with six-inch suction and five-inch discharge, has a capacity of 500,000 gallons per twenty-four hours.

The Southern Belle is another valuable gold property upon which work has been discontinued, owing to mismanagement. There is a good ten-stamp mill on the property.

On the north side of the range, the Canada de Oro has long been known for its valuable placers, and during the past few months Major H. C. Reno and Mr. Frank Newsam have taken up two square miles of ground, about thirty-two miles from Tucson. They now have twenty-five men at work building a dam at a considerable elevation for the storage of water. Upon the completion of this they expect, after the summer rains, to have a large supply of water with a pressure that will enable them to hydraulic the placers, and, from the known richness of the ground, their enterprise will probably be successful.

Silver Belle District.

The Silver Belle district lies about forty-five miles northwest of Tucson, and is one of the best copper and lead districts in the country. The principal copper properties are the Young America, Old Boot and Atlas, all of which are being actively developed, with results satisfactory to their owners. The greatest amount of work has been done on the Young America and Old Boot. The formation is lime and porphyry, and the ore is of good average value. The argentiferous lead properties are said to be exceedingly valuable.

Pinal County Mines.

In addition to the districts enumerated, there are others tributary to Tucson, and properly coming within the scope of this review. Among these we instance the mineral region south of Casa Grande, now the scene of extensive operations, and the country north of Florence. The principal ores receiving attention are those of copper and gold. Some of the mines are well developed and producing bullion. The Ray copper properties, north of Florence, are among the most considerable in the country, having been pronounced by one expert equal to the Anaconda. They are now under bond to an English syndicate for a large sum. In the same district are extensive deposits of low-grade gold ores, which will soon receive attention.

Sonora Mines

South of Tucson, in Sonora, Mexico, are the El Grupo and Plomo properties, operated by Americans. They are near the international boundary line and reached from Tucson over a good wagon road. A bi-weekly stage gives us regular communication with these settlements, and the opening of a custom house at Sasabe by the Mexican government will throw all their trade into Tucson. So far as we can learn, the results of operations have been extremely satisfactory, and large milling plants will be erected shortly.

Look out for the Pay-Streak.

Some of the peculiarities of gold mining are worthy of the attention of those who are inclined to invest their money on the strength of "assays across the ledge." Gold is not so apt to be diffused through the whole width of a ledge as some other metals are, and prefers to confine itself to what are termed "pay-streaks," and frequently a few inches of pay-streak give all the value to be found in a six-foot ledge. We recall an instance where a twelve-inch pay-streak fertilized a ten-foot ledge, and the inexperienced owner, who had built a twenty-stamp mill to work it, ran through nine cubic feet of barren quartz to one cubic foot of ore for a year before he discovered what he was doing. The moral of this is: Sample the ledge in sections and look out for the pay-streak, if there is any, and don't put up a mill to work a ten-foot ledge until you are sure you have ten feet of *ore*.

THE PROSPECTOR.

Though I'm only an old prospector,
I'm not quite as green as I looks.
My knowledge is got from nature direct
An' not from y' musty old books;
So when experts samples a rock,
An' pretends to see what's behind it,
I laugh, for I learnt long ago
Th' stuff's just about where y' find it!

When nature filled up th' cracks
In th' rocks, she didn't much care
If them experts liked it or not,
For she dumped it most anywhere.
So git out y' pick and y' drill,
An' put lots of muscle behind 'em—
I reckon you'll strike them rich ores
Exactly about where y' find em!

THE PROSPECTOR.

In a mining country like Arizona, the poor prospector is one of the prominent agencies of development whose importance is often underesti mated. He endures hardships and privations that only those who have experienced them can realize. He toils on in search of the precious metals, and when he succeeds in finding a promising lode, his task is but begun. For days, months, years perhaps, he drills into the unyielding rock, following the seams of ore until he displays sufficient to tempt the capitalist. Yet, after all the stern lessons of toil and privation, when prosperity comes, he lavishes his hard-earned wealth or divides it freely among his friends until it is gone, and then begins anew. There are many noble hearts beating beneath the rough miner's jacket, and a degree of honor, candor and intelli-

gence among them that evokes our respect. All honor to the hardy pioneer of the golden hills, and may the visions of wealth that cheer his solitary toil be fully realized!

The Grub-Stake.

The professional prospector's wealth is usually confined to the power of his muscles and his experience in locating the precious metals, and while this is a valuable capital, it is not a complete equipment for his business, hence the prevalence of what is called "grub-staking," which is explained as follows: The prospector who has a reputation for fair dealing and a thorough knowledge of his business induces some small capitalist or storekeeper to provide him with an outfit of cooking utensils, provisions and mining implements and supplies, sufficient to last weeks or months, as the case may be. To these are added a burro or two to carry the "outfit," and with this equipment the prospector turns his back on civilization and proceeds to the hills he has selected for the scene of his labors. The contract between the prospector and the party who thus "grub-stakes" him is that all mineral discoveries shall be located for their joint benefit. No formal contract is drawn up, the whole transaction being upon honor, but we have never heard of a case wherein faith was broken.

Many of our citizens have acquired interests in valuable properties by grub-staking needy prospectors. In this way Mr. Gleason obtained his interest in the wonderful King of Arizona group, and we could mention scores of others whose fortunes were founded on a "grub-stake."

Our Bullion Producers.

It will, no doubt, be interesting to the reader to hear something about our bullion producers. Mere reference to what can be done or ought to be done is poor food, but a statement of fact as to what has been done and is doing is strong meat.

The fame of Arizona as a copper producer is well sustained. The great camps of Bisbee, of Globe, Jerome (the United Verde mine), of the Clifton region, have been producing actively for the past year. There has been an increased production near Tucson, and large amounts of ore have been sent to the local smelters at the railroad.

The mines at Rosemont, in the Santa Ritas, some twenty-five miles southeast of Tucson, have changed ownership, and preparations are being made to work them on a liberal scale.

The small copper smelter at Tucson has been running for some time upon ores of local production, chiefly from Hughes camp, from Olive camp, and the Sierritas. The copper ores received from July 1, 1895, to June 30, 1896, amounted to 2,200,000 pounds. The copper bullion shipped during the same period weighed 265,751 pounds, and the copper matte 228,548 pounds.

In gold production the active and profitable factors are the Oro mine, Old Glory and a number of other smaller plants in the vicinity of Tucson. The Fortuna mine is still in bonanza and swelling the wealth of its owners. The production exceeds $50,000 per month, the average assay value for four months being $40 per ton.

The King of Arizona has just started its mill, and the clean-up of two tons brought $1,200 in gold bullion. The ore is absolutely free milling, and averages up in the hundreds.

In the Harquahalas a ten-stamp mill and a large cyanide plant are being run on a good quality of ore, with profit to the owners.

The Congress mine is one of the most prolific in the world. Three hundred and fifty men are employed, and the mines and buildings are lighted by electricity, and the company operates its own line of railroad. The principal ore is a pyrite and carries an average of eight ounces to the ton. The production of bullion is great, and the profit to the owners must be im-

mense. The present reduction works consist of a forty-stamp mill and a cyanide plant for the treatment of tailings, which will shortly be increased, as the productiveness of the mine appears to be unlimited.

The Empire Smelting Company, at Crittenden, sixty miles from Tucson, have already blown in their 100-ton smelter on argentiferous lead ores from the Patagonia district, and as the management is more than ordinarily competent, we have no doubt the enterprise will be profitable.

We could furnish other examples of actual and profitable bullion producers, but those given should satisfy the reader that we are already on a working basis.

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Ross Browne and every person since him, including H. H. Bancroft, who has essayed to write a history of Arizona, has had to interview the Hon. Sam. Hughes, and the compilers of this volume have followed the illustrious examples. Mr. Hughes was born, like most children, with a note of interrogation at the end of his tongue, but, unlike the majority, it never dried up. His yearning to know has never been satisfied and never will be this side the grave. If he had had the opportunities for acquiring knowledge enjoyed by the present generation he might have concluded, like them, at an early age, that he knew it all, and ceased prosecuting useless inquiries. But Sam will never concede that he knows anything and, consequently, is constantly acquiring information. Thus, when he came to Arizona, in 1858, he immediately began to inquire all about it, and, getting little satisfaction from the Americans, who usually considered it the best place in the world to know as little about as possible, he interviewed the oldest Mexican inhabitants, and thus became the depository of information that would otherwise have been lost. Incidentally he has acquired considerable information about other matters, which he has used in his business for a number of years with profit to himself, and his peculiar faculty of asking questions until people begin to think they know less than he does, has made him one of the most important agencies in the development of the territory.

We could have interviewed him, with profit to our readers, upon almost any subject, but decided to confine ourselves as much as possible to that of mining and minerals.

Planchas de Plata.

In the year 1769 a region of virgin silver was discovered "at a place called Arizona," which has been located at various places by parties interested in "booming" their own properties. When the news of this discovery was made public, a vast multitude of people anxious to find themselves suddenly rich, were attracted to the spot. At a depth of a few yards masses of pure silver were found; several pieces weighed upward of 500 pounds, and one was reported a trifle short of two tons! In order to protect this treasure, the commander of the Presidio of Altar sent troops to bring it to him for safe keeping, and he retained it as the property of the crown of Spain. The finders appealed to Guadalajara, and the authorities there referred it to Madrid, where the matter was carefully considered during leisure moments for the next seven years. The Spaniards rather hurried their decision, according to American notions, for it found most of the interested parties alive. It is, perhaps, unnecessary to state that it sustained the crown, and it was ordered that thenceforth the mines should be worked for the benefit of the king of Spain.

After the promulgation of this decree only the *Gambusinos* took any further interest in the silver question, and they sought it where the officers of the crown could not find them. One party crossed the Santa Cruz valley to the Patagonia mountains and discovered the Mina del Padre, afterwards called the Trench mine, near Harshaw, and another continued east to the

Huachucas, and at the southeast end of this range they found rich silver deposits. These they worked with such implements as they had, and the tunnels they ran can be seen to-day. Operations were abandoned here for some reason, and at the northeast end of the range a deposit of virgin copper was found. The containing rock had probably fallen away, leaving the sheets of copper, some of them four inches thick, lying exposed upon the ground. Carts were made to haul the pieces that could not be cut up, to the different missions.

Planchas de Cobre.

This copper was used for making large pans for rendering tallow and making soap, and there are several of them still in the country, one of them being in Tucson at the present time. Still another party of the *Gambusinos* traveled northwest from the unsatisfactory Plancha de Plata country, into the Papagueria, where they discovered gold. Others mined turquoise in the Silver Bell district, turquoise being them a medium of exchange with the Indians, and therefore as valuable as silver for the purchase of local products.

At the time of the Planchas de Plata excitement, Guevavi, near Nogales, was the supply station, and Altar the military post of the northwest, the civil authorities having headquarters at Caborca, but why this peculiar segregation was made is not apparent.

The First Aerolite.

The first aerolite discovered in Arizona was found by Spanish soldiers in the Santa Rita mountains, near the site of Rosemont, in the early part of the century, but it was evidently only a portion of a very large one. Another piece of this aerolite was found in 1858. Both were used as anvils until their true value was discovered by Americans, after the Gadsden purchase. One piece is now in the Smithsonian institute and the other in San Francisco.

Platinum and Tin.

Platinum has been found in this vicinity in small quantities, notably in the Sierritas, Santa Ritas, and on the northwest side of the Santa Catalinas. The best showing is in the Sierritas, where it always has free gold attached to it. It may appear in commercial quantity without being noticed, as our prospectors are only on the lookout for the principal metals. Tin has also been found in small quantities in the copper belt of the Santa Ritas, around Rosemont, but no special attention has been given it.

Manganese, borax and alum appear in belts through the county, the principal being one passing west of Tucson, and another up the Sonoita valley.

Mining Excitements.

There were several great mining excitements prior to the American occupation, the most notable being that of 1851. Mr. Hughes notes that which originated with Gen. Larion. While chasing Apaches near Charleston, his scouts brought in rich ore samples, and in an effort to find the vein the general raised large parties in Tucson, Tubac and Santa Cruz, but it was never found by them. In January, 1851, the Apaches raided the vicinity of Tucson and had several encounters with the garrison. They were about to attempt to carry the Presidio by assault when they learned that a large body of Papagoes were coming from the south. They immediately negotiated a truce through a captive named Jose Antonio Acuna and marched off, leaving Acuna with his countrymen.

This man had lived with the Apaches for years, and upon regaining his freedom returned to Sonora and raised an excitement by declaring that somewhere between the Salt and the Puerco rivers there existed a large deposit of pure lead, from which the Indians obtained their bullets. The

Mexicans, knowing that lead is never found in a pure state, decided that the deposit was silver, and organized a grand expedition under the leadership of Gen. Carrasco. Over 500 men started from Ures, but Carrasco dying, he was succeeded by Tapia. The party followed Acuna into the heart of the Apache country, but when, according to Acuna, they were a few miles only from the deposit, they were attacked by Indians and driven back.

These mining excitements were not confined to the Mexicans. The reports reached California, and American adventurers tried to reach the fabulous silver deposits.

Under date of July 9, 1851, a Mexican reported to his government that "Tucson is invaded by forty-eight Americans from California, and 600 men are on the way. Owing to the ravages of the cholera, there are only twenty able men in Tucson, and not many more in Santa Cruz."

In August Americans were reported from Tubac and Magdalena; 300 upon the left banks of the Colorado and Gila rivers, and another party encamped between Santa Cruz and Tucson. These Americans appear to have become sick and discouraged, and before the end of the year had disappeared.

In 1855 an official return gave Tubac a population of 249, and Tucson 760.

How It is Done.

The average business man who invests in mines, either for pleasure or profit, occasionally makes a mistake and gets neither. Perhaps he ought to keep to what he understands, but as this is asking too much, we take the liberty of making a few suggestions that, if followed, will assist him to lose his money in the least possible time.

When you have purchased a mine that is guaranteed to pay from the grass roots, invest your money freely, as grass is a certain sign of richness, and a bald-headed mine shows barrenness.

If the grass has been eroded by the operation of nature or the cattle, and your expert refers to a *ledge* and recommends development, you should order a milling plant immediately. See that the power is twice as much as you require, as you will have to either double your capacity after running a week or quit the business.

In selecting a superintendent, engage the services of a bright commercial traveler or office man; in default of these hunt up a retired army chaplain or superannuated preacher. If you get an experienced man he will insist that he knows more than you do and give you no end of trouble.

After ordering your mill and engaging your superintendent, erect some elegant office buildings and residences, so that when you visit the property you can have some comfort.

As most of your mining will be done in the office of the superintendent, see that this is well furnished with champagne and other solvents. If you have selected the right man, this detail may be left to him.

After spending upon these preliminaries about three times as much as you expected to invest, send a few men up to the mine. If they find that the ore has disappeared, or that there is only enough of it to run a coffee-mill, conclude that you have been swindled and get even by cussing the country.

A Good Opening.

In 1852, Dr. Thorne and a party of seven men were returning East from California by the southern overland route, and were captured by the Apaches near Maricopa Wells. Only himself and a man named Brown were spared, and Brown disappeared soon after they reached the Apache country.

The doctor practiced on the Indians for a long time, and as his professional services were highly valued, they refused to part with him. While his party was camped in the vicinity of the Salt river, he went out hunting with two boys, and one of them picked up a large nugget of gold from the bare bedrock in a wash west of some small red hills. The doctor affected an unconcern that he did not feel and took close observation of the surrounding country, in order to identify the place if he ever obtained his freedom.

After a variety of thrilling experiences he was able to abandon his practice among the Apaches and located in Socorro, N. M., whence he fitted out and led two expeditions to find the gold deposit. They were both unsuccessful, the country appearing to be full of small red hills, and the infirmities of age prevented him from making any further attempts. Many men have since searched for the golden treasures, but as they have not yet been found, they are still open for location.

Coal, Marble, and Precious Metals.

Mr. Chas. T. Connell, Tucson's city recorder, has been in the territory seventeen years, and his faith in its future has never wavered. While superintendent of a large mine in the Saginaw district, nine miles from Tucson, he had an opportunity to study the mineral character of this section. He believes that right around Tucson is one of the greatest mineral belts in the country. He is part owner of one of the finest marble quarries in the county, about twelve miles from the railroad. The grade is superior, and it can be extracted clear in blocks of almost any size. It supplies the marble works in Tucson, but capital is needed for extensive development. In company with Mr. Alex. McKay, he made the first discoveries of coal in the Santa Rita mountains, a few miles from the railroad. Experts pronounce it of good quality, and it only awaits capital to develop it. Oil shale is also found in these mountains, and the Whetstones, also a fine quality of fire-clay, but those who make these discoveries are not in touch with capital, and development is retarded.

The Discovery of the Silver King.

The discovery of the Silver King mine, whose almost fabulous richness first attracted attention to the mineral resources of Southern Arizona, has been a favorite theme for romancers. We are not going to add a new version, but merely desire to state that we did not discover it, and do not know who did. The first persons, however, to attach themselves to it to any advantage were four farmers living near Florence, in Pinal county, named Reagan, Copeland, Mason and Long. They had already discovered copper in the Globe district, and were therefore regularly in the business. For this reason we are of the opinion that the Silver King did not discover them.

Copeland and Long sold out to their partners for $80,000, under the impression that the mine was too good to last, but this amount was made from the net profits in less than six months. Then Charlie Mason weakened and sold his interest to Col. James M. Barney, of Yuma, for $250,000. At this time the first-class ores assayed $8,000 to $20,000 per ton, and were shipped to San Francisco by way of Yuma. Soon after, Reagan began to suspect the mine had a bottom to it, and sold out to Barney for $300,000.

Col. Robt. Williams reached Pinal just as this deal was consummated and opened an hotel. His was the first substantial building erected outside of those belonging to the Silver King company, but as the permanency of the mine was demonstrated, other buildings were erected. The company's pay-roll seldom fell below $40,000 per month, and the camp was prosperous until the decline in silver and the scarcity of ore in the mine caused a cessation of work and the practical abandonment of the camp.

The Days of '76.

Among the colonel's stories is one that illustrates the methods employed to boom mining stock in Silver King and Comstock days, where there was a live superintendent at one end of the line and skilful financiers at the other.

The Seventy-Six mine was located near enough to the Silver King mine, in Pinal county, to have some savor of goodness in the eyes of a gullible public, but industrious and expensive excavations produced nothing but "holiness;" in fact, as the colonel expresses it, "there wasn't a smell of ore." If the company couldn't get ore there was nothing but common sense to prevent them from procuring a mill, and a five-stamp plant was erected to grind out hope for the stockholders. But even hope failed, and the superintendent was called upon to coöperate with the directors of the Seventy-Six company to get them out of the hole.

Copeland had sold out his interest in the Silver King to Mason and Reagan, but retained possession of the dump, from which all the $20,000 ore had been selected and shipped. When he had sorted this over again to his own satisfaction, he sold the rest of the dump to four Frenchmen for $1,000, and they also found fine pickings; then two of them bought out the others for $10,000, and still had a small fortune left. The superintendent of Seventy-Six saw the possibilities of this dump, and proposed to the owners to run the balance of the ore through his mill at so much per ton, the bullion to be marketed through his company. As the ore was now too low grade for shipment, they readily agreed, and the stock market was soon impressed with the fact that the Seventy-Six was turning out bullion at the rate of several bars a day, and without stopping to investigate the question of ownership, the public made such a rush for stock that it went up to $7.50 a share. Of course, it wasn't worth the smallest fraction of a cent, but this was not discovered until the inside stockholders and the superintendent had unloaded.

The mill was afterwards sold to the Silver King company, but "the hole was too deep for a grave and not long enough for a well."

A Miner Must Have Grit.

To succeed in mining you must not only possess the necessary means, but what is commonly called grit—the courage to go ahead in the face of discouragement, and often contrary to the dictates of experience. We recall several notable successes which would have been failures but for the grit of the owners of the properties. Mr. Gage spent $50,000 on the Grand Central, at Tombstone, and advised the owners to stop work, as there was nothing there, but they insisted on doubling the loss or finding a mine. The mine was found at an additional expense of $5,000. The Colorada, at Minas Prietas, Sonora, absorbed $140,000 and about all the faith of the owners, but one of them insisted on making the loss an even $150,000, and a few feet more work opened up a body of ore that yielded $7,000,000 in two years. The writer once led a forlorn hope in a mine that had "petered out" and been condemned by half a dozen experts. He drove a few feet into the hanging wall and struck the true vein, and approved the judgment of those who persisted in finding a mine there.

The Deserted Dump.

A pile of waste dirt and rock, with perhaps a sprinkling of ore, is found at the entrance of every hole in the hill intended for a mine. In some cases the hole was abandoned because it did not come up to expectations; in others, because the owners found it rich enough to quarrel over, or if a company enterprise, the corporate courage gave out before the ore came in. There is nothing so forcibly impresses the mind of a

novice in mining as a massive dump with a good hole attachment. Many people are so fastidious that they won't look at a dump they haven't pulled out themselves. Hence the prevalence of dumps! A large dump looks like business and proves the existence of a hole somewhere. Every atom of the weather-stained pile represents a bead of perspiration and a dissipated dollar; it is typical of amalgamted toil, crushed hope and lixiviated faith; of long store accounts and dishonored drafts. Hope, faith, means, energy and labor transformed into a sad-eyed, silent dump! Everything is gone but the dump we sit upon—everything but the hole here, and the caving walls will soon sit upon that!

"And the brawny prospector will come
And swear, from the top of that stump,
In a soft, solemn way, as he thinks
Of the suckers that fathered this dump!"

PIMA COUNTY OFFICERS:

1. M. G. Samaniego, Supervisor.
2. T. D. Satterwhite, District Attorney.
3. R. N. Leatherwood, Sheriff.
4. F. G. Hughes, Clerk Supervisors.
5. C. F. Hoff, Treasurer.
6. J. S. Wood, Probate Judge.
7. C. A. Shibell, Recorder.

Gold Producers.

To a person familiar with the powerful machinery used in the large machine shops in the East, the plant established in Tucson by local enterprise will appear insignificant, but it is, nevertheless, as complete in its way as any in the country. Every modern appliance has been adapted to the requirements of the miners and farmers of this section by the enterprising firm of Gardiner, Worthen & Goss, who are all practical mechanics and well acquainted with the local needs.

As much of their trade is with mining concerns, they are close observers of the progress of this industry. They note increased development and some wonderful gold discoveries. As a bullion producer the Oro mine, south of Tucson, is making a reputation; large bodies of rich ore have been uncovered lately, but the company is a close corporation and figures are not accessible. The Mohawk gold mines, in the Santa Catalinas, are producing steadily, and the adjacent Mammoth property is expected to start up soon with a 200-ton daily milling capacity.

Activity in Mining.

In his capacity as resident agent of The Singer Sewing Machine Company, Mr. Theo. G. Fitch travels extensively in Southern Arizona and on the west coast of Mexico, and has unusual opportunities for marking the progress of the sections tributary to Tucson. Never in the history of the country has there been so much activity in mining or so much confidence in the future. There is a constant demand for meritorious properties, and this circumstance has encouraged prospectors to work with unaccustomed energy, with the result of uncovering rich mineral deposits hitherto unsuspected. The influx of capital into this region is unprecedented, and investors appear to be, generally, well-satisfied with the outlook, and many of them are making money. The facilities here for successful mining exceed those of any other mineral section, and the time is not far distant when Southern Arizona will take rank where it belongs.

Tucson Beats Them All.

Mr. and Mrs. Lewis D. McLain, of Pueblo, Colo., have been spending the season in Tucson, and are enthusiastic over its incomparable climate. Having spent several winters in Mexico, Cuba, the Bahamas, Florida and other resorts, they feel that they are able to judge of the relative merits of these places, and their verdict is that Tucson beats them all.

Mr. McLain claims that if it was generally known in the Eastern states what a combination of advantages Tucson possesses in the way of altitude; little irrigation, hence practically no humidity; dry, bracing air; fine drives and mountain scenery, we would need several additional hotels and hundreds of cottages to accommodate visitors.

Has Something More Than Climate.

But this country has more than climate. The wonderful mineral resources will attract mining men and investors from all over the country, for here are some of the best gold, silver and copper prospects in the world.

Mr. McLain has been for years largely interested in Colorado mines, and was among the first to realize the possibilities of Cripple Creek. He saw its population increase in a few years from 200 to 40,000, and believes that this section, with proper development, will show up properties that will equal anything yet discovered in Colorado.

He believes the erection of a large smelter here would pay a handsome interest on the investment.

As a proof of his confidence in the faith that is in him, he has made several investments in mines during his stay, and expects to return early next fall to Tucson and take a more active interest in the development of her mineral resources.

SOME OF THE DEPARTMENTS OF STORE OF L. ZECKENDORF & CO.

The Dynamics of Business.

It is a law of physical dynamics that bodies attract in proportion to their mass, and this law prevails to a great extent in the business world. The merchant seeks a market for his purchases where immense stocks are carried, and his choice is unfettered by any limitation but that of his own credit. No matter how favorably situated a place may be, it can not control trade unless its merchants are in a position to meet every demand made upon them. Tucson is no more favorably situated than several other points in Southern Arizona, but the appreciation of the dynamical law referred to has given it control of the trade of this section. Our merchants realize the nature of their supremacy, and the visitor who has not closely considered the conditions, marvels at the immense stocks of merchandise they carry. The maintenance of this tenure, however, depended for years upon one firm exclusively, and to their capital and enterprise must be imputed its present existence.

The origin of the firm of L. Zeckendorf & Co. dates from 1854, but the present establishment was founded fourteen years later. For over twenty years it has been under the immediate management of Mr. Albert Steinfeld, the resident partner, to whose energy and ability is due the prosperity of the house and its present high reputation for enterprise and integrity. The senior partner, Mr. Louis Zeckendorf, resides permanently in New York, and handles the Eastern business of the house.

The Tucson establishment is located on the corner of Pearl and Main streets, and comprises two large stores, one 85x188 feet, with basement devoted to general merchandise, and the other 65x150 feet, wherein is kept the largest stock of furniture, carpets, etc., in the Territory. Besides these two immense structures, the firm has a large warehouse at the railroad depot. The business of the firm is not confined to merchandising; it buys and sells hides, makes advances on ore consignments and transacts a general banking and agency business.

Its importations are made direct from manufacturers in carload lots, and it has the exclusive handling for Southern Arizona of some of the most reputable brands of goods. The smaller merchants find it to their advantage to purchase from them in preference to ordering direct, and as

Tucson is made a distributing point by the Southern Pacific company, a large wholesale and jobbing trade is transacted with tributary towns.

The management of such an extensive business calls for executive ability of the highest order and the employment of able subordinates, and by judicious selection and fair treatment the firm has gathered a corps of assistants unequalled in the country.

Mr. Steinfeld is assisted in the management by Mr. Hugo J. Donau, one of the brightest young business men in the Territory, whose experience covers every department and gives him a ready grasp of every situation.

The office is in charge of Mr. Frank B. Wightman, head bookkeeper; Mr. Adolph Steinfeld, assistant; Thos. A. Legarra, bill clerk, and Miss Clara Evans, cashier, all first class people and experts in their positions.

Mr. Frank H. Lee is in charge of the wholesale grocery department and is probably as well posted on freight rates as any man in the country.

The retail grocery department is superintended by Mr. R. J. Adams, an experienced man, who, during the short time he has been with the firm has proved himself a valuable acquisition.

The hardware department, wholesale and retail, is in charge of Mr. J. H. Caister, formerly resident territorial agent for The Simmonds Hardware Company, of St. Louis.

Mr. A. Allande, with a corps of assistants, has supervised the large wholesale dry goods department for many years, and his knowledge of the business and treatment of the patrons of the house has done much to accredit it.

The retail department is handled by Mr. Henry S. Campbell, one of the best salesmen and managers in the West. He makes semi-annual trips to the East to select seasonable novelties, and since his connection with the firm, the ladies of Tucson have had no occasion to send elsewhere for their gowns in order to be fashionable.

Mr. A. J. Fink has charge of the notions and millinery department, assisted by Miss Millie Katzenstein.

Mr. Fernando E. Aguilar has been in the firm's employ for fifteen years, advancing step by step until he is now the head of the gents' furnishing department.

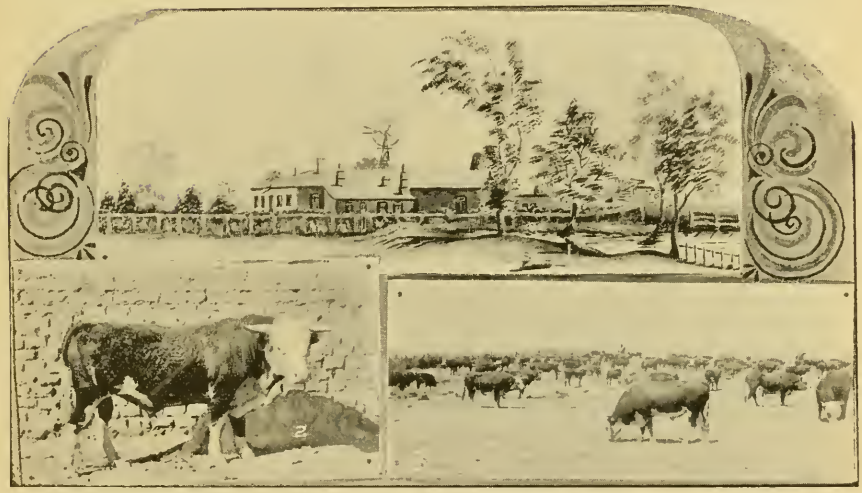
Mr. Vic. Hanney has charge of the clothing department, and handles the largest and best-selected stock in the territory.

Mr. Harry Drachman is a native son of the southwest, and was the first American child born of American parents in Tucson. He has been with the firm for thirteen years and has charge of the shoe department, for which he has established such a reputation for fair dealing that the L. Z. & Co. brands of shoes are accredited all over the territory. He is also city treasurer and a prominent member of the Knights of Pythias.

The business of these departments is all transacted under the one roof, and the facilities surpass anything found outside of the largest emporiums in the country. The visitor who surveys the busy scene from the balcony that extends along three sides of the interior will hardly credit the evidence of his senses, and imagines himself in one of the largest department stores of New York. Twenty-five clerks are constantly moving about, attending to the wants of customers or putting up orders, while the packing room in the rear presents one of the busiest scenes imaginable.

Leaving the main store and crossing Pearl street, we reach the furniture department, presided over by Mr. Ed. W. Bowers, one of the most experienced furniture men in the country, who came here originally for his health. His stock is not only the largest in the Territory, but the best-selected, everything being new and of the very latest design. His orders come direct from the leading factories in carload lots, and he is able to defy competition. He keeps a force of upholsterers constantly employed, and his trade extends over Southern Arizona and Sonora.

A Land of Beef as Well as Bullion.



Sierra Bonita Ranch: Home Ranch and Cattle.

THE STOCKMAN.

Without a care to wrinkle his brow,
He rides o'er the mesas green and brown;
And if he thinks, 'tis to wonder how
Some people can live in a town!

For the Stockman's life is as wild and free
As a bird's, as he skims o'er the grassy sea;
And he rides or rests, at his own sweet will,
While the beeves grow fatter on plain and hill.

A Land of Beef as Well as Bullion.

The question of beef supply has been a leading one from time immemorial and previously. It has lost none of its importance, and while we do not propose to devote so much attention to it in the future as at present, we note the fact that it is an important industry and a very profitable one. For the present, and until the land is required for agricultural purposes, about one-half of Arizona's area can be used for grazing lands of superior quality. The climate of Southern Arizona is peculiarly favorable both to the healthful development and inexpensive care of animals, and they are here exempt to a large extent from the numerous diseases with which they become afflicted in most parts of the country.

Cattle, sheep and horses are of the improved breeds, and progress has been continually made in this direction.

The development of the artesian water supply and the erection of surface wells and windmills, the conditions for which seem most favorable, will render the whole extent of our grazing lands available.

Alfalfa flourishes here as it does nowhere else, and the fattening of cattle and hogs on the farms has become a most profitable business.

There were shipped from the territory during the past fiscal year, ending June 30, 1896, 220,583 head of cattle, which, at an average value of $12.50 per head, gave a return of $2,757,287.50.

The First Graziers.

When the military posts established under the Spanish rule to protect the northern frontier of Mexico were abandoned, after the revolution, the bloody Apache in the west, and the warlike Comanche in the east, overran the country. Prior to this time the country lying in what is now Pima county was celebrated as one of the finest stock ranges in Mexico. The ranches belonging to the Elias family, of Arispe, who were wealthy graziers, carried more than 100,000 head of cattle, and branded yearly from 25,000 to 30,000 head of calves; all of which were swept away, together with the stock of the other ranches on the San Pedro and the Santa Cruz, by the Apaches, between the years 1830 and 1840. The ranches were abandoned, the rancheros seeking shelter in the nighboring presidios and pueblos of Tucson, Tubac and Santa Cruz, where they maintained a doubtful defense against the savages.

Stock Raising in Pima County.

The facilities afforded by nature for the growing of horses, cattle and sheep in Pima county are equal, if not superior, to those of any other portion of the United States. Its mild and delightful climate, its extensive ranges, and the variety of feed which they contain contribute to this.

Experience shows that cattle thrive under the tropical heat of the summers, while the mildness of the winter climate is exceedingly well adapted to the growth and development of stock. The entire absence of blizzards and snow storms makes the ranges peculiarly valuable. It is not necessary to store feed for winter use, thus avoiding the expense of cutting, hauling and storing the enormous quantities of hay necessary for the maintenance of large herds in less favored sections of the country.

In order that cattle may thrive, it is necessary that they have large tracts of unoccupied land upon which to graze. The raising of large herds in limited enclosures has been found not only expensive, but practically impossible. Pima county being as yet sparsely populated, furnishes ranchmen wide and extensive ranges for their stock. With mountain and rolling hills on the one hand, and forest and grassy plains on the other, the advantages for breeding are superior.

Our ranges afford a great variety of feed for stock, but they may be classed into the general heads, grasses, browse and cacti.

There are a great many species of grasses. They may be subdivided into two classes—seed and root grasses. Seed grasses are those which come from the seed after the rainy seasons, and of these there is a great variety. While they are still green and tender they make excellent feed for stock, and when they mature their seed is exceedingly fattening. Under this subhead, too, must be considered the countless varieties of weeds which are produced by the winter rains, and which make very fine feed, especially when they come into seed. Root grass, in addition to growing from the seed, also sprouts from the roots, and lives throughout the year, and is very valuable for stock purposes.

The value of browse as feed for stock can not be overestimated. In fact, without it stock, and especially cattle, do not seem to do well. The trees which furnish this browse are the "mesquite," "palo verde," "tesota," "binorama," which grow on the bottoms and rolling mesas, and many scrub plants of the foothills and mountain sides. Each one of these produces first a blossom and then either a berry or a bean, both of which are greatly relished by stock. The flower and bean of the "mesquite," "palo verde" and "tesota" are particularly nourishing and fattening, and when they are in season stock prefer them to all other kinds of food.

Cacti are a growth peculiar to tropical climates. They are very abundant in Pima county, and include a great number of species. For stock purposes, however, the principal kinds are the *Tuna* and the *Cholla*. Both of these are very thorny species, and to one who has not seen it, it seems impossible that anything with flesh and feeling could eat it. However, when the sprigs are young and tender, cattle will travel miles to get them.

The great variety of feed, and the fact that these are constantly succeeding each other, throughout the year, in their seasons of maturity, are the chief and peculiar advantages which ranges in Pima county offer for the raising of stock.

The natural increase of cattle equals that of the most favored section of the range area. Ninety and 95 per cent. is not unusual when the maximum number of bulls is kept. This is owing to the perfect climate and extreme healthfulness and purity of the air. The loss from all sources is estimated not to exceed 3 per cent. yearly, and epidemic diseases are unknown. No part of the United States can produce cheaper beef than Arizona, and none brings more profit to the cattlemen. On the broad plains and rich pastures of Southern Arizona fortunes are awaiting men of energy and enterprise. The vast stretches of rich pasture land will yet be utilized and covered with thousands of cattle.

The Perils of Branding.

While vicious acts of cattle do not often materialize, the inexperienced cowboy occasionally receives a lesson in prudence, as the following incident will show:

"The operation of branding proceeded as usual, one man roping the animal from his horse and dragging it into the side corral (or enclosure), another casting and tying, while a third branded, ear-marked and castrated.

"The man to whom had been assigned the work of branding had occasion to step into the main corral at the moment that a throw of the lasso had caused a commotion among the cattle gathered there, and the herd rushed towards him.

"Taking it for granted that they would pass to one side of him, as they had done before, he paid little heed to them, but one vicious heifer, who had already given some trouble, became frantic and furious, and seeing a man on foot, she bounded towards him with frothing mouth and lashing tail. He did not observe her until she was upon him, and then his danger paralyzed him. His strength forsook him and the iron in his hand fell from his nerveless grasp. There was no hope of escape, and he felt himself falling when he was jerked upward from the ground and lost consciousness.

"When he recovered he learned that one of his companions had been quick to notice his peril and, seeing that nothing could be done to stop the brute's furious onslaught, had lassoed him in a flash and hauled him out of the line of danger."

Keep off the Grass.

You can not very well do it if you travel in Arizona extensively, especially in the southern section. At this season of the year (spring) we have more different kinds of grasses than any country on earth, and they grow as if it was their only opportunity. For range purposes, however, we count only on eleven different indigenous and acclimated plants that, curing on the stalk, without cutting or other attention at the hand of man, comprise the great bulk of our valuable fattening food for range stock. The following is a list of the plants referred to:

Sporobulus wrightii (Sacaton grass)—This grass is found principally in the valleys, reaches the height of eight or nine feet, grows some all the year, but very rapidly after July rains, and blooms in September. It is very hardy, stands a great deal of pasturing, but is readily killed out by fire. It grows both from seed and the roots; is hard to mow on account of growing tussocks, but makes excellent hay when cut early.

Chloris alba—An annual grass growing largely in swales where there is rich soil, frequently overflowed. It has a large proportion of seed, much sought after by stock, and produces a large quantity of foliage, making excellent food. It is in some parts called Crowfoot grama.

Bouteloua oligostachya (blue grama, mesquite grass)—This grass is the main reliance of range stock in Arizona, and it is eaten by them in preference to any other. Cut for hay at the period of its growth when the seed has just passed the milk stage, it is very nutritious. Horses used every day keep in good flesh when fed upon it exclusively. It cures better on the stalk, retaining more of its substance, and lasts longer into the following year than any other range grass. It is not readily tramped out, stands droughts well, and on ranges where it has apparently disappeared because of droughts and overstocking comes again when rains are plentiful.

Aristida (white grama)—The Mexicans call this grass *chino*, or the curly grama. It is to all appearances the same as the blue grama, and is about the same for food for stock on the range, but there is much less of it. It is distinguished from the blue by a white flowering head.

Bouteloua polystachya (low grama grass)—Grows rank on the edges of ponds and where the water stands for a month or more during and after the rainy season, also along slow-running streams. It is also found on many varieties of soil, both on the mesas and on the prairie. It has the fattening properties of all the grama grasses.

Buchloe dactyloides (buffalo grass)—This grass furnishes a great amount of feed, makes more of a sod than any other range grass, and is valuable next after the grama. It is evenly and closely eaten by stock, and grows from the seed and from the offshoots, as does Bermuda grass.

Hilaria James II. (Galleta or black bunch grass)—While not considered a first-class grass, is valued on account of being exceedingly hardy, withstanding great drought; does not tramp out; makes good hay when cut in season; certain soils seem to much improve its nutritive qualities.

Festuca (pine bunch grass)—Found throughout all the pine woods region of Arizona; is valued very highly as winter range feed and makes fair hay, but not as good as the grama grasses.

Atriplex (white sage)—Very valuable in Northern Arizona, where the snow often falls to a depth to cover the most of the summer grasses; stock at such times live and thrive upon this plant, which grows on the order of a small bush or shrub.

Erodium (alfilaria)—This is a plant native of California, brought in the first instance in the wool of flocks of sheep to the territory; found to do very well in the lower plains of Southern Arizona; is very fattening and is highly valued as a spring food, starting with very little rain and before any of the native grasses.

Medicago sativa (alfalfa)—This plant is called in different portions of the world French clover, Spanish trefoil, Brazilian clover, Chilean clover, medick, and lucerne. It is being cultivated in all parts of the United States, but it no part does it surpass the growth attained here on the irrigated lands. It furnishes food equally valuable for all kinds of stock, both green and dry, and as a forage plant is invaluable to the stockmen of the territory. It is of very ancient origin, having been cultivated in Greece five hundred years before the Christian era.

Future of the Cattle Industry.

We make the following extract from the Governor's Report for 1895:

"In 1883 it was believed, and this belief continued for a number of years, until in the '90s, that the production of beef was below the actual demand for consumption—that is, that the percentage of population was increasing faster than the percentage of beef. Prices fell, however, in spite of theories, and continued to fall. Cattle men in every section of the country charged this condition of affairs to the large beef packers of Chicago. The government was induced to look into it; senate committees investigated exhaustively, and all interested watched closely. The result attained was that the packers only followed the rule of all commercial men—bought when they could get the cheapest and sold when their product commanded the best price. In fact, the charges against them were not proven. Arizona cattle men suffered in common with all others from the depressed condition of affairs, but a much better feeling pervades the community, since it is believed that overproduction caused the low prices. The cattle men have regulated their expense to meet their incomes. They now feel, because of substantial advance in prices received this year and the assurance of good range feed for some years to come, that their business is in a better condition than it has been for a long time past. With proper home legislation and governmental compliance with their just requests, there is every reason to hope that the dark days of depression are over. All our range men who can are increasing their holdings. Quite a number of Northern cattle men have been buying stocked ranges in Arizona, seeing that a turn in the business for the better is near at hand.

"The question is often asked, 'How long will the range business last?' John J. Clay, Jr., who concededly stands at the head for his intimate knowledge of range conditions in every part of America from the earliest days of ranching on the plains to the present time, and whose success is phenomenal as an all-around cattle man from the range to the great Chicago market, where he stands easily first, adding weight and value to what he says, answers this question in his Live Stock Report, as follows:

" 'That is easily answered. It is here to stay, probably on different conditions, but it is a part and parcel of our American agriculture. It is a means to an end. That end is beef or mutton, and as long as the plains and mountains exist, with present climatic conditions, so will ranching. It will be our great reservoir from which we can draw an endless number of cattle and sheep, some of them fat, but most of them only feeders. Fences will increase, meadows watered by mountain streams will be more numerous, but there will still remain, whether surrounded by barbed wire or not, a vast pastoral region which can only be used as a grazing ground.

" 'Life in the West, whether it be by some quiet stream that meanders through the plains or under the shade of a snow-capped mountain, will al-

ways have an attractive side. The air is pure, the climate fine, and there is a freedom about it which compensates more or less for the sweets of civilization.

" 'Families grow up in Spartan simplicity, adapting themselves to the circumstances surrounding the frontier, but they are silently building up, with cattle and sheep, with spade and shovel, by school and teacher, a great empire which thrives on the arts of peace and the sinew of the worker.

" 'In the distance I see the wild and woolly cowboy gradually transformed into a quiet, unassuming citizen, with his homestead, meadow and grazing lands, taking no chances except those which nature seems to provide in every clime and country.

" 'The work of revolution has begun, and the cattle on a thousand hills will have hundreds of owners, who will improve their quality as well as provide a greater quantity.' "

First Impressions of Arizona.

Dr. J. A. Monk, of 124½ S. Spring street, Los Angeles, has the most complete library of Arizona literature in the country, and to him we are indebted for the following:

I took my first glimpse of Arizona in the spring of 1884, and was so much impressed by what I saw that it has had me fascinated ever since.

I entered the territory by Stein's pass on the Southern Pacific railroad, and stopped at Bowie station, near which place I spent several weeks on a cattle ranch.

Just before reaching San Simon station in the San Simon valley, there was pointed out to me, from the car window, San Simon's Head, in the Chiricahua mountains. It is a perfect profile of a man's head in repose, facing the sky. Nearby towers a noble butte, called Helen's Doom, which received its name from a tragedy that happened many years ago, when an army officer's daughter threw herself from its summit to certain death in order to escape a more horrible fate at the hands of pursuing Indians.

At its base winds Apache pass, notorious in early days for the large number of murders committed by the Apaches under their great leader, Cochise, when overland travel to the Pacific was made by stage over the Butterfield route.

In a cluster of hills midway of the pass nestles Fort Bowie, which was established late in the '60's for the protection of travelers and settlers, and has witnessed many a hard-fought battle with the Indians who infested that region.

Upon the opposite slope stands bold Dos Cabezas, whose giant double head of solid granite is a conspicuous landmark over a wide scope of country.

Next comes Railroad pass, which was named by Lieut. J. G. Parke in 1885 on account of its easy grade and facility for railroad construction. It is a fine cattle range and its broad meadows of the nutritious grama grass is the feeding ground for the herds of the Pinaleno ranch.

From the pass, in a southwesterly direction, can be seen the rocky pinnacles of Cochise's stronghold in the Dragoon mountains, where the doughty Apache chief had his favorite rendezvous for many years, and into which place, when closely pressed, he invariably retreated for safety.

High above the surrounding country majestic Mt. Graham rears its pine-crested head at an elevation of nearly 11,000 feet above the sea level.

Everything was new and entirely different from anything that I had seen before. The landscape was strangely fascinating; mountains bounded the horizon in every direction, and a veil of purple haze softened every object in sight.

One year prior to my visit, my brother, Judge E. R. Monk, located Pinaleno ranch in Railroad pass and stocked it with cattle. It was in the height of the cattle boom, when a scrub Mexican cow and calf delivered on the range cost $30. To make such a start was risky business, not only because of the high prices of cattle, but also on account of frequent raids that were made by hostile Indians, when ranchmen were killed and the stock driven off. However, the venture proved a success, and after many years of vicissitude, such as are incident to the stock business, the M. O. K. outfit still occupies its old range.

The drive to the ranch was delightful, being about ten miles out, and reached by a road that skirted the Dos Cabezas mountains. Being a new range there was an abundance of grass everywhere and the cattle fared sumptuously. Riding the range daily with the cowboys, inspecting the cattle and watching their playful antics but gave me the desired opportunity to see the country in detail and enjoy my outing to the fullest extent.

Old Indian trails were numerous, and abandoned mescal pits showed where, in days gone by, the Apaches had camped and feasted on mescal and pinole. Railroad pass was at one time a favorite haunt of the Apaches, and even as late as the date of my visit there was enough danger from raiding Indians to make life exciting.

In the previous winter, Gen. Crook had driven the Apache chief, Juh, and his renegades, into Mexico, where after an unusually hard campaign he captured them in the Sierra Madre mountains. They were brought back to their reservation at San Carlos and put to work raising grain instead of lifting scalps. The last contingent of about thirty prisoners, with their guards and herds of horses and cattle, crossed our range, and their fantastic appearance was an amusing sight to a tenderfoot, particularly as the Indians were harmless.

Sierra Bonita Ranch.

One of my first acquaintances was Col. H. C. Hooker, and since then I have often enjoyed his genial hospitality. He is the proprietor of the Sierra Bonita ranch, which is the most valuable ranch property in the territory. It is located in Sulphur Spring valley, twenty-two miles north of Wilcox and ten miles south of Fort Grant. He has an ideal ranch home, which is a large, commodious house, built in the Spanish style and elegantly furnished with all the latest modern improvements. In the midst of his interesting family and surrounded by friends, he is fixed to enjoy the evening of his life in contentment and plenty. He is a New Hampshire man and went to Arizona and settled in his present location in 1863. He owns a large tract of land, which is all under fence, and he has spent much time and money in experimental farming. I saw as heavy grass and grain growing on his place as ever grew anywhere. His herds consist of Durham and Hereford thoroughbred and high-grade cattle, which command the highest market price. His horses are equally good, and, indeed, he is only satisfied when he has the best of everything.

He has lived in Arizona for thirty odd years and has had the experience of all pioneers in settling up a new country. He has been in great peril from the Indians and he told me that in that time he has had forty men killed by them. He has also lost much stock, which loss, though caused by the Indians, the government, even at this late day, has failed to make good.

The regular force of employés numbers twenty-five, all the best men in their lines, and the rate of wages runs from $30 to $75 per month and board. Mr. Hooker believes in securing the best of everything, including help, and adherence to this principle has brought him the success that now crowns his efforts.

Cattle Stock.

To this principle must also be attributed the perfection of his herds, which by judicious selection of strains, after careful experiment with each, has made his brand a guarantee of perfection. He experimented with Durham and other breeds and finally adopted the Hereford on account of its superior quality as a grass feeder. In 1881 he purchased 220 head of registered bulls from T. L. Miller, of Beecher, Ill., for $30,000, then the largest importer of Herefords in the United States. New blood has been constantly added since, and he now has the finest herd in the country. His grass-fed steers average from twelve hundred to fourteen hundred pounds and command the highest market price. The records of the English market show that grass-fed Herefords bring the same price as grain-fed Durhams, and his experience has demonstrated the fact that they ought to. They not only thrive on grass, but have better "rustling" qualities than any other breed, and can be depended upon to hold flesh when common cattle on the same range run to bone and horn.

Stock Breeding Farm.

During the spring of 1897, 3,500 head of cattle have been shipped from the range, including 300 young bulls and 1,000 cows to Eastern markets for breeding purposes, all bringing the highest market prices.

It would be strange if a progressive man like Mr. Hooker remained contented as a meat purveyor for the Eastern market with one of the best breeding ranges in the world about him. On his property all the very best features of the Hereford breed are brought out, and this fact so impressed itself upon him that he realized that a demand for stock cattle from less famed sections of the country would arise as soon as it became known that he could meet it.

This he is now prepared to meet, and the time is not far distant when the Sierra Bonita strain will become distinctive in the market.

As intimated in the beginning, the impressions that were made on my first visit to Arizona were deep, and the interest then awakened has not diminished, but has increased with each subsequent trip. Its attractions are many which, if described in detail, would fill a large book. It contains great natural wealth which in time is destined to make it one of the richest commonwealths of the Union.

Occidental Hotel, Tucson.—Cattlemen's Headquarters.

FEDERAL OFFICERS:

1. W. K. Meade, U. S. Marshal.
2. Geo. J. Roskruge, Surveyor General.
3. C. DeGroff, Postmaster.
4. J. D. Breathitt, U. S. Special Agent.
5. E. R. Monk, Receiver Land Office.
6. E. J. Trippel, Register Land Office.

The Rodeo.

Fortunes are made by taking advantage of opportunities, but the most successful men are those who, by the exercise of good judgment and the judicious use of a little money, make their own opportunities. Some men waste their energies sitting around hotel offices and waiting for a good thing to come along, while others hunt up the good things or make them. Tucson is, just now, a field for endeavor and offers more opportunities for enterprising men than any town in the country, and people of this stamp realize it at once.

Messrs. Breathitt, Trippel & Proctor are gentlemen who combine all the essentials of success, and as cattle, real estate and mining brokers and insurance agents, they are not only going to meet opportunities, but make them. They have means and the confidence of their clients; are in touch with the markets, and their strictly honorable and advanced business methods place them in the front rank. Their offices are the handsomest in the city and the personale of the firm guarantees hospitable treatment for their patrons. Col. J. B. Breathitt is widely known as special agent of the general land office, and prior to this he was, for six years, a prominent member of the Missouri board of railroad commissioners, and served as district attorney of Saline county. Hon. E. J. Trippel came here in 1884, and is a son of the late Alex. Trippel, the well known mining expert. He

has occupied many important public positions with us, having been deputy collector of customs, member of the legislature and register of the United States land office. Hon. F. B. Proctor is a practical stock raiser who has also served us in several public capacities which proved his quality.

This firm is a combination of ability that can not be equaled, and with such favorable conditions as now exist, they are certainly on the road to fortune.

Thoroughbreds.

Brady & Levin are the cattle dealers of the territory, their operations extending over the whole of it. They have contracts made for spring delivery for 28,000 head of cattle, and could handle more, but stock raisers, in view of the great demand and rising prices, prefer to hold for better figures. They report that all the ranges are in superb condition, cattle looking well, and their owners full of confidence. The price of cattle has almost doubled in the last few years and is still going up, and everyone in the business will make money. This firm also handles real estate and mines, and insurance business, and note that property owners show no inclination to sell, but hold the land at fair prices. The demand is good, principally for residences. Both these gentlemen are home products of a quality we are proud of. Their fathers were pioneers and their sons are carrying forward the banner of progress and winning a reputation for themselves as sound business men and good fellows.

Quite Characteristic.

The Hon. W. K. Meade followed the star of empire in 1871, and engaged in mining in Southern Arizona. He vividly recalls the halcyon days when silver was king and the mines were pouring out their wealth of gray treasure, and hopes to see them return.

He represented Pinal county in the legislature in 1879, and Pima county in 1881; in 1885 he was appointed United States marshal for Arizona, and reappointed in 1893. He was World's Fair commissioner, by appointment from President Harrison in 1892, and resigned to accept the marshalship.

Honest John.

We do not know how Judge J. S. Wood came to be called "Honest John," but we can understand wherefor, for with the exception of one term as county treasurer, he has occupied the office of probate judge and county school superintendent of Pima county since 1874. He is getting along in years, but is still full of vigor, and wants to see some more improvements before he dies. He believes we need better water works and a complete sewerage system, and he is right.

The judge is ably assisted by his deputy, S. W. Purcell, Esq., a lawyer of no mean ability.

It Is Not in Alaska.

Among our successful business men are several who are our own boys, educated in our public schools. One of them is Mr. W. E. Felix, who served his apprenticeship with L. Zeckendorf & Co. before founding one of the finest retail dry goods stores in Tucson. Being an all-around business man, his views on business matters merit attention, and it is inspiring to hear him speak of our future prospects. He refers with much amusement to an incident in his last trip to New York to lay in his summer stock. He found that many intelligent people were under the impression that Tucson was somewhere in Alaska, which tends to show the necessity for some judicious advertising.

The Farmer's Paradise or Land and Water.

Orchard near Tucson.

A niggard soil and unfaithful sky
Breaks the farmer's back as the years go by;
The uncertain crops, and the interest day
That never fails, make his hair turn gray.

But our fruitful soil, and our sunny skies,
Fill up his soul with glad surprise;
For his ditches run full in the driest years,
And he laughs at the sky, and has no fears.

A Word to the Eastern Farmer.

When the Eastern farmer takes into consideration all the hardships and privations of his existence; the constant toil, poor compensation, enforced economy and the sufferings from winter's frosts and summer's heat, he must surely come to the conclusion that he lot is indeed a hard one. His life is one of constant drudgery and his accumulations of years aggregate a very small sum indeed. Now mark the difference by which like industry is rewarded in Southern Arizona. His manifold crops during the year exceed four-fold that of his Eastern farm, and the market price received is more than double, while the labor involved is no greater. His yearly return represents fully eight times as much as that from his eastern farm, while his ordinary living expenses do not largely exceed those prevailing there. Besides this immense pecuniary gain he enjoys the benefit of a genial and healthful climate where his years of life will be prolonged and his ability for enjoyment largely enhanced by the natural conditions that surround him here. His fruit trees mature more rapidly and bear wonderfully prolific crops, and a thousand other advantages are offered him. Such facts as these are sufficient to induce a very desirable class of immigrants to come to this country to till the soil and make it blossom and bear a golden harvest.

The most permanent population is the farmer, and from the farm comes the most steady stream of wealth; it is the resource of the life and existence of the people, for without bread no people can live, and this must be supplied from the soil, and the planting of farms in Arizona is the encouragement of permanent wealth and steady prosperity and the retaining at home the vast volumes of money which is drained by the foreign market that supply our mining regions with breadstuffs and other products of the soil. Farm life in Arizona can be made the most profitable and charming of any place in the United States, and when this becomes known generally, there will be a large immigration of home-seekers to this region, but we must render our lands available for farming. This requires capital, and the press must be the prime factor in this work. With population and wealth, statehood will follow as a matter of course.

A Farmer's Paradise.

Alfalfa is one of the most nutritious pasture and hay plants, and reaches perfection in this congenial climate; from three to five crops may be harvested in a single year, yielding from two to five tons of cured hay per acre at each cutting, and upon this crop the range cattle are fattened for the slaughter and stock hogs are grown, while a large quantity is baled and shipped out of the territory.

Barley, wheat, rye, oats and corn yield abundantly. Most of the wheat is converted into flour for local consumption, and barley forms the staple grain for live stock.

It was thought at one time that potatoes could not be grown in Arizona, but this fallacy, like many others, agricultural and otherwise, has faded before the light of experience. Large quantities of excellent tubers are raised, and in Southern Arizona planting and harvesting succeed each other almost continuously throughout the year.

Sorghums, both sweet and non-saccharine, are extensively grown for live stock food. Tobacco of fair quality is grown in the country adjacent to Tucson, and this is preferred in some cases to the imported article. Recent experiments at the university show that many improved varieties thrive here and may be made an important farm crop.

The conditions which serve to perfect the conditions for agriculture, contribute in a more marked degree to the successful carrying on of horticultural pursuits.

The apricot leads in acreage under cultivation and quantity of fruit produced, but the bright sun and congenial climate seem particularly fitted for the production of highly colored and luscious peaches, and the peach grown here is of superior size and quality.

Grapes for the table, for raisins, and for the manufacture of wine are grown cheaply and in abundance and of the very best quality in the vicinity of Tucson.

Pomegranates are so common and grow so lustily that they are used for hedges.

In elevated localities apples of splendid quality and large size are produced and the trees are very prolific.

The mesas and foothills have been found well adapted to the growth of the orange, and the fruit has been pronounced equal in size and flavor to any imported from California.

The fig tree is found in every garden, and few of our busy housewives neglect to keep up a good store of delicious fig preserves.

There is a great future for the almond. The trees grow well, are prolific, come into bearing early and the nuts can be placed upon the market when there is the the most demand for them.

Strawberries are raised in abundance for home consumption, and their flavor surpasses that of the California product. No attempts have been made to raise blackberries for market, but these no doubt would do well.

We have the finest assortment of vegetables all through the year, and produce the largest and best-flavored melons in the world. We simply plant the seed, supply the water and the climate does the rest.

Sweet potatoes and yams yield large crops, while cabbages, beans, peas, lettuce and onions thrive amazingly.

The peanut plant is prolific in sandy soils, but has not been tried extensively.

What a Farmer is Doing.

There is nothing equal to personal experience to establish a fact, and the following statement, written by a practical farmer, carries conviction in every line. It was not solicited by us, but we offer it as one instance out of many that substantiate our claim that Pima county offers better inducements to the farmer than any other part of the country:

"The day is not very distant in the rush of American life when the remarkable development of Fresno and Southern California will repeat itself in our beautiful valleys of Southern Arizona, and then our friends of the range and horned cattle will experience, perhaps, a similar sensation of astonishment at the changes which greet them here, to be mingled probably in a similar degree with reflections of the incredulity which they had felt at one time that such things could ever be.

"The same causes will surely produce here the very same results, and no one who has been lately watching the signs of the times, as presented in the present prosperous condition of the orange tree in the vicinity of Tucson, can help foreseeing the same wonderful experience.

"While the triumphs of the southern section of Arizona will be great, as time goes on, in producing the citrus and deciduous fruits, it is not my purpose here to linger over these, but I will confine myself to what can be done in Pima county, from actual experience, in the more humble field of raising vegetables. I find our soil and climate not only adapted to all the Eastern vegetables, but with the aid of irrigation, producing vegetables superior in quality and quantity to those of the Eastern and Central Western states. I have successfully grown in my garden this year, cabbages, carrots, onions, beets, celery, salsify, tomatoes, squash, green peas, asparagus, cauliflower, lima beans, early corn, egg plant,

artichokes, lettuce, parsnips, pumpkins, turnips and watermelons and cantaloupes of different varieties and of the most delicious flavor. It is difficult to say which vegetable thrives best in this portion of Arizona. The cauliflower grows splendidly and surpasses anything that I have ever seen in the East. Although it is now midwinter, I have plants in my garden with large spreading heads, as white as snow, still growing and apparently unaffected by the cold nights. The beet also grows wonderfully in this country; they are very large in size and very sweet in flavor; so well adapted to our soil is this vegetable that I am sure it will be grown in the early future in Arizona on a large scale for sugar. For this reason I have watched its growth with the greatest interest, and the result is fully equal to my most sanguine expectations, and I hope to soon see a beet sugar factory established in this county.

"Lettuce seems to be our greatest vegetable curiosity. It grows at all periods of the year; the coldest weather does not seem even to affect it. The wind scatters the seed and I find it springing up in the grass at considerable distances from the garden. We produce the plant in perfection for the tooth, and I have seen nothing to surpass it anywhere. Pumpkins and squashes do well with us, the former growing to an immense size. The white scalloped variety also grows here to perfection. I was surprised to see the artichoke and egg plant do so well in our climate. They seem to be at home here and are very thrifty, as, in fact, are all the vegetables that I have raised.

How Alfalfa Grows.

Farmers from the East, who are accustomed to cut a single crop of hay from their fields in a year, are puzzled and incredulous when told that the soil of Arizona gives from four to eight crops of good alfalfa hay, and that the same marvelous productiveness continues year after year. As an instance, we cite the case of one of our farmers, with eight acres of alfalfa. The seed was scattered at the rate of twenty pounds to the acre; a good stand resulted, and in April the grass was ready to cut. The eight acres produced twenty tons of cured hay, and in the early part of June it was cut again, the crop this time being twenty-four tons. On the 1st of July the grass was thirty-two inches high and nearly ready for another cutting! The total yield was 168 tons, and this is not, by any means, an exceptional instance.

Tobacco Culture.

A very superior grade of tobacco is raised in the vicinity of Tucson, and manufactured by L. Zeckendorf & Co. This brand has become very popular, and their factory has not lately been able to meet the demand. This firm, with commendable enterprise, encouraged the raising of tobacco by promising to utilize it, and now the yearly product is several tons, and the market is always increasing. It is used generally in this section by the Mexicans, who prefer it to the adulterated mixtures imported from the East.

Experiments at the university station show that some of the finest grades of tobacco can be raised here, and there is no reason why this industry should not assume larger proportions.

Hard to Beat in Beet Culture.

The subject of beet sugar production is just now of considerable interest to Southern Arizona. It has been satisfactorily demonstrated that sugar beets can be successfully grown here, and it is also a fact that they contain an unusual percentage of saccharine, giving better results than in any other part of the world. They seem to reach the highest perfection in the bright sunshine of Arizona, while the soil supplies abundant nourishment for their growth. They are a profitable crop to the

farmer, and will prove to be a valuable addition to our industries when sugar works are established here.

The agricultural experiment station of the university has lately been agitating the subject of sugar beet culture and distributing seeds to the farmers throughout the territory.

Prof. Wm. Stowe Devol, director of stations, has kindly furnished us with the following facts on the subject:

"This is *par excellence* the country for sugar beets. The essentials of successful sugar beet culture are sunshine, warmth, a proper amount of water, with a deep but only moderately rich soil of a friable nature—a moderately fertile sandy loam—and industry intelligently applied. These factors abound around Tucson. Beets carefully grown here will contain 20 per cent. of sugar, while in Germany, our great competitor, but 13 per cent. is obtained. They will not exhaust the soil in growing, for it is well known that the sugar which is carried off comes entirely from elements furnished by the atmosphere.

"There is an advantage in growing the sugar beet here that is not possessed by any other locality in the world. The same machinery can be utilized for the manufacture of beet sugar and the extraction of tannic acid from canaigre.

"This being the native home of the canaigre, it can be grown here as in no other place, and thus an opportunity is afforded for keeping the machinery in operation the year round.

"Canaigre is a winter, and the beet a summer-growing plant, and the planting of the beet seed begins about the time the cultivation of canaigre ceases.

"Sugar grown under the conditions prevailing here is of the highest quality, and leather tanned with canaigre extract is the best made, especially for patent leather and other high grades. There can, therefore, be no question as to the future of the sugar industry in this section.

Canaigre, the Great Tanning Plant. Canaigre is a plant, belonging to the dock family, which is a native of Arizona. Its astringent roots contain about 10 per cent. of tanning substance, and have been used as medicine by the Indians and also for the tanning of leather by the Mexicans. The plant begins its growth in the fall, under the influence of cool weather, sends up its flower stalk in the spring, and dies back as the hot summer weather comes on. The seeds are mostly sterile, the plant propagating itself mainly by means of the young roots. These roots somewhat resemble sweet potatoes in shape, grow in clusters, and vary from a very small size to over two pounds in weight. They live several years, making their chief growth the first season, slowly increasing each year until they finally die.

The university experiment station, though it has been in operation but six years, is already widely known for its work on canaigre, and as a result of the attention called to the subject through the station bulletins, the wild product has been shipped to Eastern cities and Europe. The supply of wild roots being limited and somewhat scattered, this product could not be depended upon, and a number of canaigre plantations have been established in Arizona.

In this way it is proposed to carry on its cultivation upon the plan of the beet sugar industry, and, if possible, in connection with it.

The commercial value of canaigre is now well established, and the qualities imparted by it to leathers are unexcelled. The possibilities of a crop so staple as one used in the production of leather can hardly be overestimated, and it requires less attention from the farmer than any other crop.

The efforts now being made to demonstrate paying methods of culture

are full of promise, and it will soon become a very important addition to the material resources of Arizona. The short but interesting history of this new industry shows the value of experiment station work in assisting the development of a new country.

The First Potato.

Every once in a while we read in the newspapers that some pseudo-scientist has discovered the original Irish potato, and a short-lived celebrity is attached to his name. The search for the original potato is really wasted effort, for the article is right here in Arizona, and can be found on nearly every hill. It is called the *cobena*, and has been a favorite vegetable with the Indian from time immemorial. It has a blue potato flower, and the root bulb, though not large, has the true potato flavor. There is nothing of the yam about it, and we believe it was Prof. Lemmon, the well-known botanist, who pronounced it the progenitor of our civilized vegetable. This ought to have settled it, but the only way some scientists can achieve distinction is to discover something they have read about.

Beets and Canaigre.

There is a probable advantage to be found in the sugar beet industry in Arizona that can be found in very few other localities in the United States. This is to be attained in combining in one factory the two industries of manufacturing sugar from the beet and the extraction of tannic acid from canaigre. Concerning this matter, Mr. C. B. Allaire, president and general manager of The Tanning Extract Company, at Deming, N. M., who has had more experience in the extraction of tannin from canaigre than any other individual in this country, and has also carefully studied the process of sugar manufacture, and whose opinion should therefore have great weight, writes as follows:

"A large part of a sugar factory could be used for extracting tannic acid from canaigre—of course the boilers, engine, pumps, etc., also the root washers, with some modification; the conveyors, slicers and diffusion battery, if built of copper. When it comes to the vacuum pans, both primary and secondary, some modification would be necessary. I doubt if any sugar factory, already built, could be adapted to extract without a very large expense for copper work necessary; but if the manufacture of both classes of goods was contemplated before the factory was built, it could be done at an increased cost of not over $25,000 for a 200-ton factory, and in my opinion there would be no trouble in thoroughly cleaning the apparatus so that the sugar would show no traces of color from the extract. * * * To adapt a factory to both classes of goods, the extra expense would not be so much in duplicating apparatus as in the substitution of copper for iron, which would be necessary for the tannin liquors, where iron answers every purpose for sugar. * * * Marketing the extract might be troublesome to people who had experience in sugar only, and might justify a separate manager for that department, at least until the business was thoroughly established."

M. Swenson, of The Walburn-Swenson Company, manufacturers of beet sugar machinery, Chicago, writes respecting this matter as follows:

"We have made quite a number of experiments here with canaigre, and will say that I think the diffusion battery and evaporating plants used in a beet plant could be worked all right for canaigre. I do not think it would be necessary to use copper for the diffusion cells if these are thoroughly painted with acid-proof paint. You would probably have to paint them at least every season. The slicer and other machinery needed in the beet sugar factory would be equally available for canaigre."

Others are studying the question and experimenting in the processes with a view of uniting the two industries as suggested above.

By-Product of Beets.

A few years since experiments were begun in California to ascertain the value of beet pulp as a food for dairy cows. The results have been so satisfactory that the practice of feeding this material to dairy cows has extended very materially, and large quantities of beet pulp are not only fed at or near the factories, but shipped by rail to considerable distances for feeding dairy cows. A very important by-product is the syrup remaining after the crystallization of the sugar.

Ramie a Profitable Crop.

There is a growing demand for ramie fiber, and we are assured by the director of the Arizona experiment station that he is receiving offers from abroad to make contracts for it in the rough at $40 to $50 per ton.

Experiments have been made with ramie (rhea) at the station, and the results obtained prove that it can be cultivated here commercially, and at the prices offered it will be a profitable crop.

It is well suited to our climate and is the most prolific of textile plants, yielding about 250 pounds of marketable fiber to the acre. Rooted in fair, sandy soil, its shoots increase at the rate of 100 annually for each one planted. The stalks measure from five to eight feet in length, and yield a fiber with the fineness, gloss, and almost the tensility of silk.

The stems when ripe are cut down, stripped of leaves and branchlets, and, either split or whole, are freed from their cortical layers till the last layer is exposed. In this state they are made up in small bundles and placed where they receive strong sunlight, being kept slightly moist, for several days, after which the fibrous bast layer is peeled with ease off the woody core, and the separated fibers are then treated with boiling water to remove gummy and resinous matter, and bleached. It comes into the market, when fully prepared, as brilliant white filaments, with a fine silky gloss, having a strength, luster and smoothness unequaled by any other vegetable fiber.

The Santa Cruz Valley.

This famous valley has been occupied by farmers for centuries, and the evidences of this are everywhere abundant. Settlements have grown up and disappeared, and there is not even historical connection between the former and present settlers. Ruins of buildings, including mining works, larger and probably better than any now occupied, constitute the indisputable testimony of the comparative extent of the former people and their improvements. This testimony may be seen at San Xavier and other points near Tucson. To students and very inquisitive people, much that we could write in this behalf would doubtless be interesting; but with the farmer, stock-raiser and miner, struggling along to meet current necessities with hopes of something more, it would probably have a mere passing thought, and therefore we will turn to a brief notice of advantages the valley now presents to a settler, and some of its improvements.

Like many other streams in Arizona, the Santa Cruz runs under ground here, and sinks entirely just below the city. Of course water can be had anywhere by digging, and by proper economy in saving and distribution, many more farms could be supplied with the running water, and this is evidently recognized by the people who are now beginning to make new homes at various points in the valley. Rich bottom land is miles wide here and there, with table and mountain lands, covered with the best grasses. In the vicinity of San Xavier the valley is covered with a heavy growth of mesquite, enough to supply fuel for years, and near the stream are found cottonwood and willows. High up the valley, or rather in the elevated lands adjacent, there is live oak. At this time the valley is about equally devoted to stock-raising and farming. The more desirable sections near it are alive with cattle, and as a whole they are in fine condition. The

most picturesque portion of the Santa Cruz valley is that adjacent to our city, and a more lovely spot can not be found at this season of the year. Fields of grain and vegetables dot the river banks for many miles; shady nooks and comfortable homes are found everywhere, the whole presenting a practical illustration of the agricultural possibilities of Arizona.

"How Doth the Little Busy Bee."

We can assure our readers that he does remarkably well in Southern Arizona, and every visitor remarks upon the superior class of honey he manufactures. Unlike the Eastern article, sickness never follows its hearty consumption. Clear, delicious, cheap and healthful, it is held in high esteem by all. There are several grades of honey produced, however. The best is that obtained by the bees from the flowers of the mesquite, for which, when in bloom, they leave all other food. The mesquite honey is pure and white in color and of exquisite flavor. The bees also extract sweetness from "flowers that bloom in the spring," from the blossoms of the sage, the fruit and flowers of the cactus and a hundred other sources. Late in the season the main dependence is on the bloom of alfalfa, which gives to honey a darker color and stronger flavor than the earlier product possesses. It is all good, and the local society of bee men are taking steps toward shipping it abroad in large quantities.

He Makes Money for His Owner.

A farmer informs us that he has taken twelve tons of strained honey from 182 hives of bees this season, and expects to take fully five tons more. All this work he has done himself, with the assistance of his wife and boy. His outlay for sheds, hives and extracting machinery has been about $900. all of which has been paid for this season, or in other words, the capital invested has brought a return of 100 per cent. this year, which is not a bad thing in itself. As a beekeeper he is jubilant at the success, even after shipping the honey to Chicago for a market, where it brought 6½ cents a pound.

History of Irrigation from Earliest Times.

Adam watered the Garden of Eden from the river that went out of it, and over 2,000 years before the Christian era, Nimrod built cities in the valley of the Euphrates and irrigated the lands thereof. At the same early period the inhabitants of Armenia took water from the Euphrates and Tigris to irrigate the lands between the rivers, and some of their canals can be traced to-day. The Hebrews brought water from the mountain streams of Palestine to irrigate the beautiful plains and verdant valleys beyond the Jordan; they constructed reservoirs for water storage, one of which, Solomon's pool, had a capacity of over 25,000,000 cubic feet. Damascus, the oldest inhabited city in the world, was irrigated from the Abano and Pharpar, forty centuries ago.

Crossing over to Africa, we find that in the time of the Pharaohs there were over 200,000 square miles of Egypt irrigated from the Nile, and a storage reservoir between 600 and 700 square miles in area was constructed by Amenemhat to increase the productiveness of Egypt and ward off calamity. Following the shores of the Mediterranean along the coast of Africa, we find at almost every step abundant evidence of ancient irrigation, and learn from history that here the lands were made almost as fertile as the valley of the Nile.

In the eighth century the Moors constructed dams and reservoirs in Spain, and led their canals like arteries through the land. Italy, too, had half a million acres under water in Lombardy alone.

Early in the twelfth century France turned her rivers upon the lands to make them produce as they had never done before.

China has been a network of irrigation systems for thirty centuries or more, but her crowning achievement is the immense canal, 1,000 miles long, between Canton and Pekin. The southern portion of Siam is artificially watered, and in India canals of wonderful size and capacity cross and recross the arid plains.

While the rainfall in Japan is three times that of the United States, the careful husbandman increases his crops by irrigation. In Australia, where most of the rivers flow inland and sink in the sands, irrigation has become the farmer's reliance. The Aztec empire had the most perfect system of irrigation and aqueducts when the Spaniards conquered it, and the old missions on the Pacific coast were furnished with water through canals made by the Indian converts.

And here in Arizona, centuries before Columbus discovered America, a race of people of whom there is no written record constructed immense waterways, erected grand dwellings, and covered the earth for miles and miles with fields of corn; the lines of the canals they dug can be traced today, and some of them are used by our own people.

Tapping the Underflow.

The wonderful pasture lands of Southern Arizona early attracted the attention of stock raisers, and under both Spanish and Mexican rule, grants of land in this section were eagerly sought for. Some of these were acquired under a pledge to colonize them or protect the frontier against the incursions of Indians, but few of these pledges were fulfilled and nearly all the grants were abandoned after the withdrawal of the Spanish troops after the establishment of the republic. Fitful attempts were made from time to time to liberate the country from the dominion of the savages, but the periods of peace were not of long duration.

The cloud cast upon titles by these grants, for the most part abandoned by the original grantees, but resurrected by grasping Americans, has been a great drawback to settlement, and it is only since the establishment of the land court that the settlers upon them breathe freely.

While many of them were fraudulent or had lapsed by non-user, there are others of which possession has been maintained and the title perfected, among which is the Canoa ranch in the Santa Cruz valley, about forty miles south of Tucson, owned by Maish & Driscoll for the last twenty-seven years. It controls one of the finest grazing sections in the country and the situation leaves nothing to be desired.

A few years ago the owners conceived the idea of developing the underflow of the river and conducting it upon the fine valley land pertaining to the property. Running a ditch a mile in length, with a grade of one inch to the rod, they obtained water enough to irrigate 400 acres, which are now planted to alfalfa and grain. They are confident that an additional mile of ditch will give them an unlimited supply of water. From this tract they have baled this season about 5,000 bales of grain and alfalfa hay. They maintain over 400 hogs besides fattening cattle when necessary. This year, up to June, they had sold 2,700 head of cattle off this range.

Besides the Canoa, they possess the Buena Vista ranch south of Calabasas, which is well watered and grassed, and several deep well ranges in the Papago country.

Raising Water.

From an interview with Mr. W. A. Hartt, who is cultivating a large area of land in the Santa Cruz valley, eighteen miles south of Tucson, we have obtained the following particulars regarding the pumping plant upon which he depends for water for irrigation:

"My plant consists of two pumping engines, aggregating a capacity of 2,500 gallons per minute, or about 275 miners' inches. The largest is of the duplex-compound type, non-condensing, and they are both supplied with steam power from a horizontal tubular boiler rated at forty-five horse power. The well is a vertical, four-compartment shaft, twenty-four feet in length by twelve feet in width; three of these compartments have a depth of forty-two feet, and the pump foundations are built at the bottom. The fourth compartment has a total depth of fifty feet and forms the well proper. The distance from the surface of the water to the point of discharge on top is forty-five feet, and the size of the discharge pipe of the large pump is fourteen inches, and of the smaller, seven inches.

"The pump is automatic in operation and the speed is controlled by a float in the well which can be set to supply any quantity of water desired continuously. I have a circular reservoir in connection with the plant, 350 feet in diameter, and a capacity of 7,000,000 gallons.

"In giving an estimate of the cost of operating, I confine myself wholly to my own case, on the basis of the 100 acres actually cultivated. Three irrigations to each crop would be a liberal allowance any year, and this would require the flooding of 640 acres six times and the cost would not, basing the calculation on my own expense for 100 acres, exceed $1.75 per acre.

"The cost of such a pump on board the cars at Chicago will be about $2,500, but for a 100-acre farm a 500-gallon plant will be sufficient."

Storage Reservoirs.

The future agricultural development of Southern Arizona depends upon the use of its superb facilities for storing the surplus waters of our rivers. A number of these projects are under consideration, and only await the attention of capitalists to become established facts.

Twenty-five miles southeast of Tucson, in the depression between the Whetstone and Rincon mountains, is the *Pantano Cienega*, a valley about fifteen miles long, with an average width of nearly two miles, except at the lower end, where the hills approach, leaving only a deep chasm for the passage of the waters.

This valley is a wonderful water basin, receiving during the year the contributions of a thousand mountain streams, and furnishing enough water to irrigate millions of acres. At present the waters run to waste, flowing northwest along the base of the Rincons into the Rillito, and finally into the Santa Cruz, a few miles north of Tucson.

Between the *Cienega* and Tucson is a wide stretch of mesa land, twenty miles long by ten to fifteen broad, the most fertile in the world, and which would yield abundant crops of fruit and cereals if water were available.

Several excellent reservoir sites have been located and preliminary surveys show that the difference in altitude of about 1,200 feet makes it possible to fill these from the overflow of the *Cienega*.

A short time ago the city council of Tucson agitated the matter and sought to secure an expert opinion on the subject from the professor of hydraulic engineering at the university, but as funds were not available for a thoroughly scientific examination, he did not feel at liberty to give an informal opinion. Nevertheless, the impression made by his statement was to the effect that the project presented no insuperable natural difficulties.

Surveyor General Geo. J. Roskruge, who had surveyed the ground, and, we believe, located the reservoir sites, claims that the only difficulty in the way of utilizing the *Cienega* waters is the lack of capital. There is water in abundance, and the investment would yield better returns in a few years than any similar enterprise in the territory.

The Overflows of the Rivers.

In the matter of developing the overflows of the Santa Cruz and Rillito, it has been fully demonstrated by practical and successful experiments (as will be seen elsewhere in this volume) that there is no limit to the amount of water that can be made available for agricultural purposes. These experiments, however, have been made on a small scale with local capital, and without those facilities that ample means would afford.

There are few parts of the valley where underground streams of considerable volume can not be tapped and the waters brought to the surface.

The Santa Cruz river carries water enough by our doors during the rainy seasons to irrigate a principality. Most of it can be saved for use during the dry seasons by the construction of reservoirs along its route, and distributed over the fertile lands that fringe its course.

Natural Reservoir Sites.

The reader must not infer from our reference to reservoir sites that these are mere locations of level surface requiring an elaborate and expensive work of excavation. They are for the most part natural reservoir sites; depressions formed by nature, or, perhaps, excavated by the primitive race that once densely populated the valley. The amount of work required to place them in condition is comparatively trifling. The average cost per acre-foot of capacity of sixteen of the largest reservoirs in California does not exceed $15. This does not include the cost of distributing canals or other works incidental to the irrigation system. The Bear Valley reservoir cost $5.30, and we do not believe that the construction, or rather the rehabilitation of the proposed reservoirs in this valley will cost half this amount.

The Tucson Canal.

It was left to individual enterprise to prove the feasibility of the development of the underflow of the Santa Cruz river. A local firm purchased the old Warner mill property at the base of Sentinel peak and proposed to irrigate several acres of valley land from the lake, and succeeded in accomplishing even more than they had planned.

At the base of Sentinel peak the bedrock rises almost to the surface, thrusting the water up. Warner lake was supposed to be merely a storage reservoir, the importance of the springs that fed it being underestimated, and when they proposed to irrigate from this body of water, never more than thirty-seven acres in area, it would, naturally, soon be drained. Such would have been the case if they had relied upon the storage proposition, but they knew that it was a question of the whole drainage of the valley, and to confirm their judgment they drove a piece of four-inch casing to bed rock, exploded powder at the bottom, and obtained a rush of water that rose several feet into the air. Thirty lengths of four and six-inch casing were driven down eight and ten feet and two feet apart to ascertain whether or not the supply could be diminished, but no diminution resulted, and having thus proved that the supply of water was practically inexhaustible, they proceeded to run their canals through the valley, and now have six miles of main canal, irrigating about 1,500 acres. They are satisfied that they can develop sufficient water to irrigate at least 8,000 acres, but having to depend upon their own capital their progress is necessarily slow.

Three miles north of Tucson, a change of grade gives them a fall in their main canal of twenty-five feet, and they contemplate utilizing this for power purposes. It will probably develop from forty-five to fifty horse power and run a fifty-barrel flour mill.

There are many points on the Santa Cruz river where their opera-

tions can be duplicated, while the valley of the Rillito can all be irrigated from that stream by a modification of the same principle. The expense is not too great to deter private enterprise, and the returns from the outlay will prove a handsome recompense.

An Irrigation Project.

The land lying along the Santa Cruz river, between Tucson and the Sonora line, a distance of over eighty miles and of an average width of two miles, contains 160 square miles, or 102,400 acres of valley land, all of which is suitable for alfalfa, sugar beets, grains, fruits and vegetables of all kinds.

These lands, located on both sides of the river, can be reclaimed by different systems of irrigation, either by the construction of reservoirs at the base of the *mesa* lands, to be filled by the waters of the Santa Cruz river during the flood season from July to October, or by the construction of a dam at Guevavi, near the Sonora line, where the bed rock comes near to the surface. A dam at that point would be about 450 yards in length on top, and at a height of forty feet would back the flow waters two and one-half miles. Allowing eighteen feet per mile of fall to the river, an average width of one mile and a depth of ten feet, the reservoir capacity would be about 1,000,000 cubic feet of water, or enough to irrigate 10,890 acres. The underflow waters could also be developed at other points where the bed rock is close to the surface, by running open cuts below the water level. Some of these points are located at Calabasas, Agua Fria, Tubac, Otero, Canoa, San Xavier and near the smelter, north of Tucson.

Tucson Philharmonic Band.

UNIVERSITY OF ARIZONA

THE STORY OF THE UNIVERSITY OF ARIZONA.

There is no section of the United States which has, compared with its population, better educational facilities than Arizona.

The University, at Tucson, and the Normal School, at Tempe, are both institutions which, in equipment and thoroughness of instruction, have few superiors.

If the reader is specially interested in the subject of higher education, he will appreciate the difficulties under which we have labored in establishing a university at this early stage of our political career, respect the aspirations that gave it birth, and wonder at its present prosperous condition.

Its foundation is the result of the labors of a few far-seeing men, who knew that the social advancement of a community is best shown by a recognition of education, not merely as a necessity for the ordinary affairs of life, but as a means of reaching those broader fields of duty and endeavor whose horizon reaches as far as Thought extends.

In the case of the University of Arizona, labor was fruitless until opportunity came, like a providence, and made achievement possible to those who waited.

At the beginning of the session of the territorial legislature held at Prescott in 1885, a combination was formed to prevent the removal of the capital, and as the Pima county members had no special instructions, they acquiesced in the arrangement. As the session advanced, however, an uneasy feeling pervaded the county that our people were going to receive nothing but a general interest in a few laws of doubtful value, and a committee of two, consisting of a prominent stock-raiser and a *grip-sack*, were transmitted to Prescott to urge our members to secure the capital for Tucson. The committee arrived in the north too late to accomplish anything and returned home with a moving tale of trust betrayed and opportunity neglected. Tucson was worked up to a high point of indignation, that vociferated on the street corners, deluged the public press and burdened the mails without finding relief. The echoes of this emotion reached Prescott, and our members felt that they had to do something to pacify their constituents. An effort had been made, in the early part of the session, to pass a university bill for the benefit of Tucson, but had not received any serious consideration, and this was resurrected and introduced. It came into the house during the last hours of the session and was received with shouts of derision and mocking gibes.

A young lawyer, who is now a leading member of the bar, rose to speak in support of the bill, and with an eloquence that surprised himself even more than his audience, he held their attention for nearly an hour. It was the supreme effort of his life, and practically founded the University of Arizona!

Eloquence, however, is not far-reaching, and the university project languished for lack of sustenance and sympathy. All that Tucson obtained was the mocking title of "Athens of Arizona." Our citizens, with some noble exceptions, mourned for the lost capital, and would not be comforted. So deep was the feeling against our legislators that two of them, not daring to return and face the popular indignation, emigrated to California.

The exceptions alluded to were stronger than the general rule, and one of the bonds authorized to be issued for the erection of buildings was negotiated in the face of a public protest, and when the succeeding legislature attempted to revoke the establishing act, the institution was saved again by the fiery eloquence of a young member. He pointed out the legal obstacles to an act of revocation, and so worked upon the sentiments of the legislators that the university was permitted to exist.

Ground was broken for the university building on October 13, 1887, but, owing to unforeseen delays and legal complications in the construction of laws, little progress was made until 1890, when work was resumed with vigor. In this year the appropriation made by congress for the establishment of an agricultural experiment station in Arizona was made available. In 1889 an agricultural college had been nominally established, in order that the Territory might avail itself of the Morrill act.

Its present income is derived from three principal sources, viz.: The Hatch or agricultural experiment fund; the Morrill or agricultural college fund, and territorial appropriations. The first two are United States funds, and at present contribute annually $15,000 and $22,000 respectively, while the territorial appropriations will average nearly $12,000, giving a gross income from these sources of $49,000.

The university buildings are situated upon the high mesa one mile east from the business center of Tucson. They occupy a tract of forty acres, in a most healthful location, commanding a view of attractive mountain scenery upon all sides. The accompanying engravings give a better idea of their appearance than any description can, but no art can convey to the imagination any idea of the grandeur of the surrounding scenery or the balminess of the air.

The buildings are substantial and well adapted to their uses, the experience of older colleges having been liberally consulted in this particular to the advantage of the student.

Ample accommodations are provided for non-resident students, board and room being furnished at a maximum rate of $15 a month. A capable matron is in charge of Ladies' Hall, and the male dormitory is governed by one of the professors.

Military training is obligatory to the end of the sophomore year, and each member of the military organization is required to provide himself with the prescribed uniform within six weeks after his entrance. This uniform costs $12, and is neat and serviceable.

There are five regular courses offered, and students who obtain full credit for the required work in either of these courses during four years will receive the degree of bachelor of science. The advanced degrees of M. S. and M. A. are conferred upon bachelors, graduates from this university or from institutions of equivalent grade, who successfully pursue a course of study marked out by the faculty, requiring not less than one year. The degrees of civil engineer, mining engineer and electrical engineer are open to graduates properly prepared, and who pursue special lines of post-graduate work.

The five courses are outlined as follows:

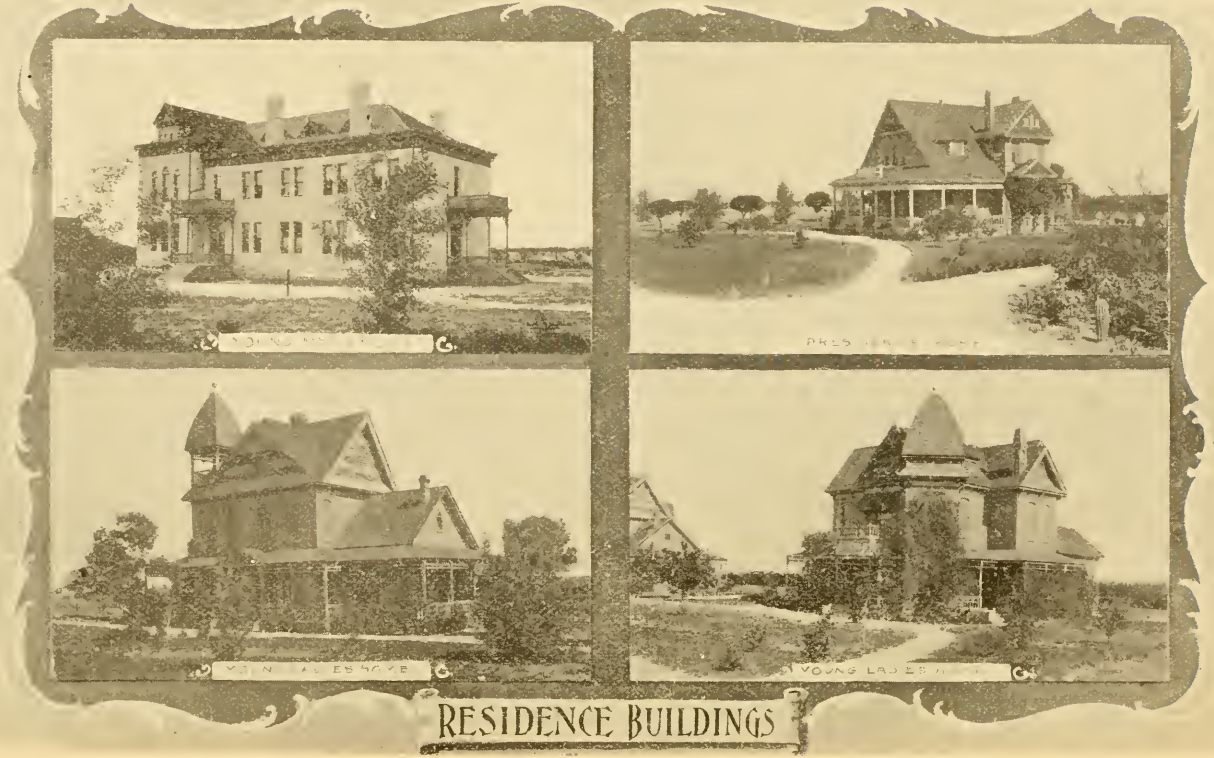
I. *The General Course* is a proper curriculum for the average student, and embodies what is most suitable for the broad general culture demanded by modern life.

II. *The Agriculture Course,* in addition to portions of the General Course, covers special teaching by means of lectures and recitations, supplemented by field-work, laboratory practice and clinic.

III. *The Civil Engineering Course* is designed for young men intending to become civil engineers and surveyors, and aims to prepare students for immediate usefulness.

IV. *The Mechanical and Electrical Engineering Course* aims to fit young men in the most practical manner for the duties of these professions.

V. *The Mining and Metallurgical Course* is designed to fit young men for the theory and practice of mining and metallurgy, and for the superintendence or management of mines, mills or metallurgical works.



RESIDENCE BUILDINGS

As the reader will see, the chief object of these courses is to prepare the student for active duty in the profession he has chosen, and the facilities for so doing, apart from the character of the instruction, will be understood from a perusal of the following notes on the equipment of the several departments of the institution:

Agricultural Department—The equipment of this department has been greatly augmented during the past year. There are the best Azoux models of portions of the domestic animals; several cases of vegetable products; a large collection of seeds arranged in jars, and also a selection of garden tools, and instruments used in veterinary surgery. Recently there has been imported from Germany a collection of charts illustrating the anatomy and physiology of domestic animals and the structure of fruits and grains. Specimens of farm products are constantly received for examination. Two fine greenhouses are attached to this department for laboratory work, and field-work is given on the spacious grounds of the university. The agricultural section of the general library contains all the standard works and current publications upon agriculture in its various branches, and the sciences upon which it is based.

The agricultural experiment station headquarters are connected with this department, and all the bulletins and reports of the experiment stations of the United States and foreign countries are on file.

The Biological Department is piped for gas and water, and liberally provided with apparatus for research and instruction. Students pursuing histological work are provided without expense simple and compound microscopes, as the nature of their work demands. The laboratory is equipped with microtomes, culture baths, oven and other accessories used in modern methods of research.

An herbarium, containing nearly 10,000 sheets of plants, mostly indigenous to the Southwest, a large percentage being from Arizona, is an important factor in the equipment. Some fifty cases of insects, including one large cabinet, are of value in giving instruction in entomology and to illustrate the economic insects of Arizona. The work in general and systematic zoölogy is greatly facilitated by the Herbert Brown collection of birds and other zoölogical material which has been brought together during the past five years.

To aid in the study of human and comparative anatomy and physiology we are provided with articulate and disarticulate human skeletons, plaster and papier-mache models of the important organs, and microscopical preparations illustrating the structure of the various tissues. The equipment also includes special apparatus for use of advanced students in this department.

The Chemical Laboratories are two in number. The smaller one, on the upper floor of the main building, is for the use of students and is equipped for teaching the theory and practice of chemical science. The room for laboratory work is well lighted, provided with gas, water, working desks, ventilating hoods, an abundance of apparatus and chemicals with which to carry on experimental work, and can be made to accommodate about twenty-four students. Adjoining the large room is a small store-room, stocked with apparatus for demonstrating the principles of chemistry, and containing well-selected collections of chemical substances.

The experiment station laboratory occupies three large working rooms and two small store-rooms on the lower floor of the main building. This laboratory is devoted to analytical work and chemical investigations relating to the agricultural interests of the territory. It is excellently equipped for the special lines of investigation in which it is engaged, and although not primarily intended for the use of students, it has educational value to those who desire to witness the operations of a working laboratory. The

equipment includes chemical balances, chemical apparatus and supplies, machinery for preparing samples, and special appliances for the analysis of milk, agricultural products, tanning materials and soils.

Civil and Hydraulic Engineering—In this department the fact has been recognized that the first actual engagement secured by the student will be either in the field with a surveying party or in the drafting office, and the equipment has, therefore, been chosen with a view to developing the highest skill in these fundamental lines of work.

In addition to the large number of technical books and periodicals in the general library, this department possesses a considerable number of valuable reference works concerning its special lines of investigation.

The Department of Physics is equipped with very complete facilities for experimental demonstration of all important phenomena. The lecture room is fitted with shutters, so that it can be instantly darkened, and a beam of sunlight, directed by a very fine clock heliostat outside, may be thrown steadily across the lecture table for experiments in light, or used in connection with the solar lantern for a variety of other work. The lecture table is supplied with gas, water, electric currents from primary and storage batteries, and from the large dynamo.

Adjacent to the lecture room is the apparatus room, where are kept the very best instruments and appliances for demonstrations.

Both these rooms open into the large physical laboratory, where the students verify for themselves the laws set forth in text books and lectures.

The machinery and technical sections are equipped with carpenters' benches, lathes and other pieces of machinery, operated by foot and steam power.

The School of Mines is well equipped for giving both theoretical and practical instruction in the arts of mining, metallurgy and assaying in all its branches.

Attached to the main building is an annex, or mill, containing machinery and appliances for crushing, sampling, concentrating, amalgamating, leaching, chlorinating, and the electrical treatment of various kinds of ore, in large or small lots. The student has access to this apparatus and is required to familiarize himself with its manipulation. Power is furnished from a seventy-horse power boiler, detached from the main building, the steam being carried underground to the engine-room, which contains a thirty-five-horse power engine, and a sixteen-horse power Westinghouse automatic engine, the latter being used for running the dynamo.

The mill building has a storage capacity for ore of 50 to 100 tons. A seven-inch by ten-inch Blake crusher is used for coarse crushing, and a Dodge crusher for finer work. Beneath the Blake crusher is a set of fourteen-inch by twenty-inch Cornish rolls, from which the ore passes by a conveyor to the main elevator, which carries it up thirty-five feet to the top of the mill. By means of slides and chutes the crushed ore may be sent at will to various machines to be tested by different methods. For concentration there are provided revolving sizing screens giving facilities for preparing six sizes, besides hydraulic separators for classifying slimes into three grades. A small apparatus, run by electric motor, is also provided for dry concentration. A five-stamp gold mill, with silvered plates and aprons of the latest and most approved construction, has recently been added to the mill, thus permitting the working of free-milling gold ores by the usual methods and on a large scale. Several lots of ore have been successfully worked and returns made in gold bullion, thus familiarizing the mining students with all the details of feeding, stamping, cleaning up, retorting, smelting and assaying.

In addition to the five-stamp mill, a smaller prospecting mill of three stamps has been added so as to work small lots of ore of from 100 to 2,000 pounds.

A sampling mill permits of rapid crushing and mixing large samples, preparatory to assaying.

Above the engine-room is the electrical laboratory, containing a seventy-five-light Mather incandescent dynamo, from which six circuits are distributed to different parts of the university building. Of these, two circuits are for lighting purposes; one extends to the hoisting motor; another to the motor which runs the concentrating machinery; another circuit to the fan motors used for ventilating purposes, and the sixth branch goes to the storage batteries which provide current for electrolytic work in the assay laboratory.

The assay laboratory is one of the most complete in the West in its appointments. This is equipped with assay furnaces for crucible work, for scorifying and cupelling, and for retorting mercury from amalgam. An adjoining room, supplied with water, gas and electric current, has a roomy hood for work involving fumes, with tables and desks for student work, besides all needed appliances for assaying by dry and wet methods, including electrolysis.

The laboratory also has desks and fittings for the chemical work required in the metallurgical and mineralogical investigation and analysis of ores, mineral fertilizers and qualitative tests of minerals.

A reagent and assay-supply store-room adjoins this room, and also a balance room, with balances of the highest grade and accuracy.

The school is thus prepared to give instruction, and at the same time to work ores by the ton, and also to determine the nature and value of obscure and little known mineral substances, specimens of which are received by mail from all parts of Arizona and beyond it, and are examined gratuitously.

The last legislature, with the view of making the school of mines still more useful to the mining interests, passed a law fixing the following extremely low prices for assaying of ores taken from deposits and mines within the territory:

For each assay producing gold and silver	$ .50
For each assay producing gold, silver and copper	1.00
For each assay showing more than three metals	1.50

This enactment, while it assists the miner, gives the student an opportunity to acquire by repeated practice a confidence that he would not get from isolated experiments. All assays are made by or under the direction of a competent assayer, the student work being chiefly in the manner of check tests.

Special students, having some general qualifications, are admitted to this department and acquire a fair amount of proficiency, but can not receive a degree.

Besides the studies referred to, instruction is also provided in music (vocal and instrumental), and in all the branches of a complete business education, including stenography, typewriting, penmanship and commercial studies.

The Government of the University is vested in a board of six regents, four of whom are appointed by the governor, the remaining two being the governor himself and the superintendent of public instruction. But while the board is thus a political body, the appointees, who practically control the destiny of the institution, have generally been able and conscientious persons. The political kaleidoscope, however, works injuriously in causing changes oftener than the best interests of the institution demand.

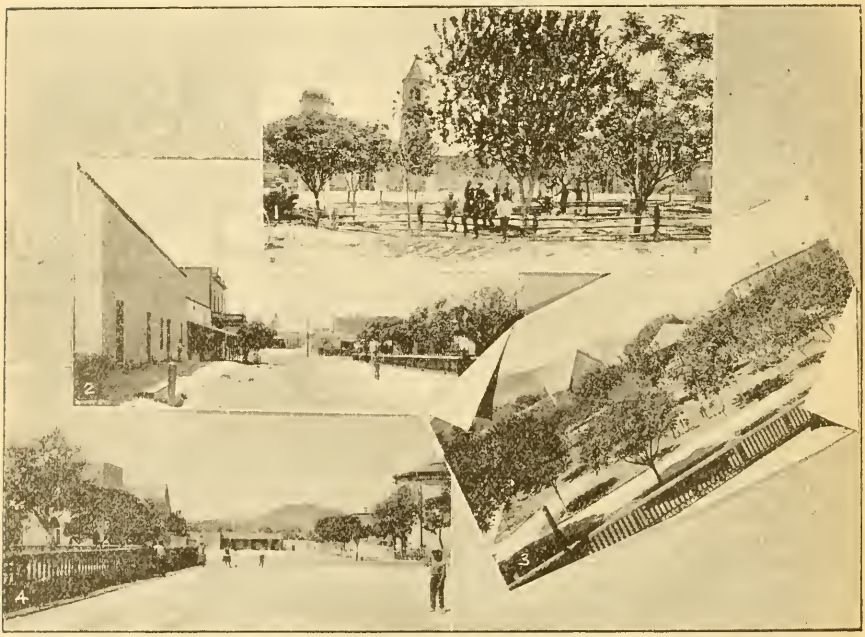
The reader, having thus been informed of the general conditions of the university, will be prepared to learn that the chairs are filled by professors who would do honor to any similar institution. Liberal salaries are paid, and the very best talent sought for. The marvelous climate and the great field for original research have brought to us many able men, whom we could not have secured otherwise.

The student body contains representatives from several Eastern states, who find here conditions more favorable to study, and no better facilities can be had in the country for studies connected with mining than are offered here. A fully equipped plant is almost constantly in operation on commercial work, and real mines can be examined or worked by the student at any time.

The rates of living are exceedingly light, the tuition is free, and the social environment is excellent.

The University of Arizona is certain to attract the attention of parents of delicate children, who can not stand the rigors of the Eastern climates. Here it is not alone a superior education that is furnished, for the physical constitution of the student is enriched, and vigorous manhood crowns his commencement day.

We regret that the requirements of space prevent us from further pursuing this interesting subject. Detailed information can be obtained by addressing the President of the University of Arizona.



Street Scenes, Tucson.

The City of Ages

TUCSON,

The Oldest Settlement in the United States.

Bird's-eye View of Tucson.

Ancient in years, but her long life well spent,
She smiles serenely at the face of Time.
Sphinx-like she sat, while ages came and went—
The oldest city and the gentlest clime.

But lo! The wail of suffering from afar,
Aroused her energies, and like the star,
That heralded the Savior of the race, she rose
To bring new hope into a world of woes.

Santa Fe is Old.

The struggle between Santa Fe and San Augustine on the question of priority of settlement has about worn them out. San Augustine pants upon her sandy shore, and the mosquitoes sing a lullaby, while poor old Santa Fe grins disconsolate from amid her ruins. Tucson has not, heretofore, claimed anything but climate and prosperity, but now she rises to explain that these two hoary-headed sinners have been wasting their declining years in trying to prove private property in what belongs to neither.

Fifty-six years after Father Marcos de Niza explored Arizona, that is to say, in 1595, Juan de Onate entered New Mexico, and in 1605 a settlement was established near the site of Santa Fe.

In 1680 a general revolt of the Indian tribes drove the colonists and missionaries out of the country, and for twelve years it was absolutely abandoned to the original inhabitants.

In 1692, Diego de Vargas began the reconquest of the country, and finally made it possible to relocate Santa Fe somewhere near the original site.

For the sake of argument, and seeing that it is no advantage to Santa Fe, we will concede the original date of settlement as 1605, and proceed to consider the claims of the Florida claimant.

But St. Augustine is Older.

In 1562, Admiral Coligni obtained from Charles IX., of France, the privilege of planting a French Protestant colony in the New World, and finally succeeded in establishing one on the River St. Johns, in Florida. The colonists had just become comfortably settled when the Spaniards, who classified heretics with alligators, pounced upon them.

On the 28th of August, 1595 (the same year the Spaniards entered New Mexico to Christianize the Indians), Pedro Melendez, with a company of 2,400, descended upon the Huguenots and exterminated them, but left the alligators and mosquitoes.

Phillip II. was then proclaimed monarch of North America, or whatever it might be thereafter called, and the necessary foundation being prepared, San Agustin (as it was then spelled) was founded with due pomp and ceremony.

And Tucson is the Oldest.

Conceding Santa Fe's claim of 1605, and also paying due veneration to the antiquity of San Augustine, we claim priority for Tucson on the following grounds:

According to authentic records, Marcos de Niza and the negro, Estevanico, explored Arizona in 1539, passing through the Santa Cruz valley and the Gila settlements. He made such a wonderful report on the country, which he swore to, that the question of establishing a settlement in that section was seriously considered, and in 1552 the matter was reported favorably and the settlement ordered established.

The proof of this is contained in a stained and time-worn document written on vellum, signed by his Catholic majesty, Charles the First of Spain and Fifth of Germany, the successor of Ferdinand and Isabella, the patrons of Columbus, and countersigned by the viceroy of Mexico.

It was discovered recently among the relics of the ancient mission of San Xavier, nine miles south of Tucson, and was forwarded for safe-keeping to the librarian at Washington, in whose custody it now is, or ought to be. The date on the vellum is 1552, and, allowing three years for good measure, we can place the date of Tucson's settlement at 1555, at which time San Augustine was merely a strip of coast line, and Santa Fe a prairie dog village. Attached to the vellum is an interesting account of the founding of Tucson, written in the fair, round hand of Marcos de Niza.

The town was never afterwards abandoned. It moved along the river, following the most fertile land as it was discovered, and finally located where it now is.

For years at a time it was cut off from all official connection with Mexico and lost sight of. The church neglected it and the government ignored it, but the Indians were friendly, and the European settlers, cut off from home and friends, dwelt among them and became almost as they were.

When the missionaries, more than a century later, entered the country again, they found many of their own race to welcome and aid them, and this accounts for the easy manner in which the people were converted. It took only three years (1690-3) to establish a chain of prosperous missions along the Santa Cruz valley, and Father Kino was never able to induce more than a few priests to come to his assistance!

The City of Ages.

The city of Tucson will always be an interesting spot to the student of antiquities, but he must come here soon to get the best results, for the antiquities are fast disappearing before the march of progress and the ruthless hand of the curiosity seeker.

The adobe walls that formed the battlements of the old Mexican pueblo have crumbled away, the mission ruins are disintegrating, the ancient cities are being plowed up, the Indians are learning English and wearing store clothes, and some vandals have even gone so far as to chip off the faces of the painted rocks.

While it is the city of ages, it has been embued with the gift of perpetual vigor and robust youth. It grows brighter, better and bigger every year, and the stimulus of its increasing prosperity courses through every artery of its social and commercial life.

In the dawn of its existence, when Indian chants wooed the gentle zephyrs and the daily siesta was unbroken in the sunny silence, it watched the passing of the uneventful years with listless gaze. Its dusky inhabitants reveled in the luxury of idleness, and drew dreamy intoxication from the balmy ozone of the skies.

We were not here at the time, but we have often felt the gentle influence upon us, and can verify the above if required to do so.

Later on, hostile assaults from northern savage hordes bestirred to action the encompassed denizens, and ceaseless warfare changed their sweet repose to years of deadly strife.

Then came the holy fathers from the South, and mail-clad warriors and thundering guns, mud-walled forts and all the bustling energy of Christianity, to be again succeeded by a still more aggressive race, the one that rules to-day.

Its perpetuity is one of the curiosities of this land of ancient marvels. Race after race has dwelt here and vanished, leaving hardly a record of its history beyond the mouldering ruins found on hill and plain; but the same mild air and sunlit sky that made this a happy home for them is ours to-day!

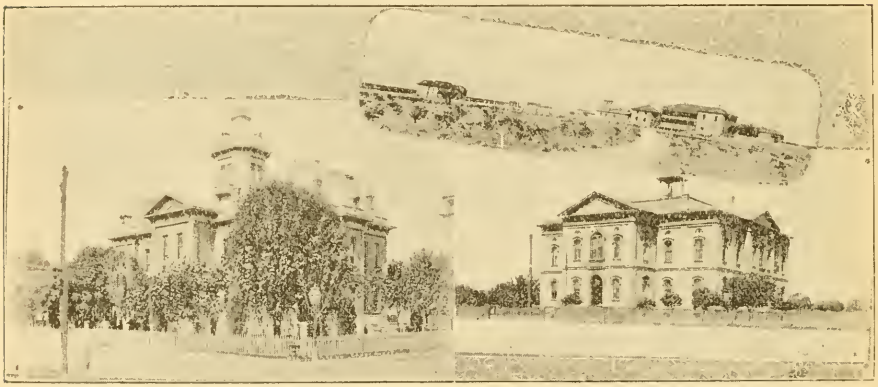
Tucson in 1847.

While Gens. Scott and Taylor were invading Mexico and writing in letters of blood the preamble to the treaty of Guadalupe Hidalgo, which added an empire to our national domain, Tucson was a small square of adobes, often assailed by savage Apaches, and never free from peril. There were then about twenty-five Mexican families living within a walled square of small extent, which constituted the town proper, and a small detachment of Mexican frontier guards. There were two entrances by immense doors made of heavy timber put solidly together, and these were invariably closed at night. The rear of the houses adjoining the walls were built four or five feet higher than the front, which faced in-

ward, thus making an effective breastwork of about twelve feet in height. It was commanded by three bastions, set at the corners where attack was most feared, and so constructed as to infilade the walls, as well as to intimidate the approaching enemy. Artillery was suggested by two small cannon, more dangerous, however, to the garrison than to the enemy.

From some of the old settlers we learn that the enclosure occupied the space bounded as follows: Beginning at Washington street, thence south to Pennington; up Pennington to about the middle of the court house; thence north to Washington street, along Washington street to place of beginning. One of the entrances stood where Alameda street enters Main, and some of the old wall has been used in the construction of modern buildings.

Besides the town square there was another smaller enclosure occupying the block east of the Occidental hotel, where trade was carried on with the Indians and the cattle herded at night.



1. Indian Industrial School.
2. Pima County Court House.
3. Tucson High School.

The First Chain Gang.

Judge Chas. M. Meyer and Jimmy Douglas, who prided himself on carrying six bullets in his revolver and one in his leg, a relic of Gettysburg, were responsible for the first chain-gang in the territory.

Twenty years ago no place was worse governed than Tucson, and Judge Meyer and Jimmy were appointed a committee of two to effect a change. The first thing they did was to establish a chain-gang, and enlist in its ranks every offender that was caught. Jimmy did most of the catching, and the judge "sent them up." The shyster lawyers who had been running the machinery of justice to suit themselves, tried to overthrow the chain-gang with the constitution of the United States, but their efforts availed nothing, as the judge did not propose to fool with the constitution until he had thoroughly tested the chain-gang. His process was as summary as the result was gratifying, and in a short time all the wild, rough characters who had ruled the town were employing their energies in rubbing down its streets.

Judge Meyer has been justice of the peace or recorder ever since, and is confirmed in his habit of making the punishment fit the crime.

Only a Supply Post in 1871.

Many of our old settlers were army men who dropped out of the service when the war was over, convinced that promotion in civil life would come swifter and higher. Among these was the Hon. Chas. R. Drake, who reached here twenty-five years ago, when Tucson was a small frontier supply post. Two companies of the Twenty-first infantry, commanded by Col. Dunn, were quartered in tents on Military plaza. The settlement was then confined to that part of the city lying along Main street, between Congress and Ott, and east to Meyer street. The firms then doing business were A. & L. Zeckendorf, E. N. Fish & Co., Goldberg & Drachman, Lord & Williams, Tully, Ocha & Co., and Chas. Lesinsky & Co., and of these but one survives, the firm of L. Zeckendorf & Co. Old Congress Hall stood where it stands to-day, under the management of C. O. Brown. There were none of the modern facilities or conveniences. If one wanted to visit the outer world he had to take a stage journey of 500 miles to San Diego, thence by steamer to San Francisco, or a 900-mile stage trip to Trinidad, Colo., the nearest railroad point on the east, with all the chances in the world of meeting Indians. Eastern products were hauled from Trinidad by ox and mule teams, and supplies from the West came from San Francisco by way of the Colorado river to Yuma, and thence by teams to Tucson. Groceries were extremely high in price; common table salt cost twenty cents a pound; potatoes and onions, twenty-five cents; bacon and ham, fifty cents; coffee, seventy-five cents, and other staples in proportion.

The population was about 1,500, principally Mexicans, and there were only two American ladies outside of those belonging to the military post.

Our entire dependence was on the army until the discovery of the Tombstone mines and the arrival of the railroad brought us an increase of population and incited us to turn our attention to some of our natural resources.

Hard times followed the heavy decline in silver, but we lived in hopes of an improvement, which eventually came. Up to 1888 it was almost impossible to borrow money on real estate, and hence few people invested in homes. The establishment of a building and loan association worked a marvelous change. Snug homes arose as if by magic, and people learned that they could live as comfortably here as elsewhere. The railroad and mines afforded us a permanent income, and our prosperity began to unfold and gather in a hundred hitherto unperceived resources, until to-day it is positively assured.

We need many public improvements in order to keep up with the changed conditions. Our water works are inadequate for the needs of the new Tucson, and a system of sewerage is desirable.

Mr. Drake has an elegant home, facing on Military plaza and embowered in verdure, and feels contented to pass the rest of his days here and see his children carry forward the good work he has begun.

The Black Horse Cavalry.

The arrival of the Southern Pacific railroad put us in touch with the outside world, and did more for the upbuilding of Arizona than any event in its history.

The first through train reached Yuma, December 15, 1878, and the work of construction was continued to Casa Grande, at which point it rested for a year, and was not completed to Tucson until March 20, 1880.

The driving of the silver spike was a gala day. Bob Leatherwood was mayor, and Dr. J. C. Handy, Chas. T. Etchells, M. G. Samaniego and myself, councilmen. I wrote over to Dick Gird, of The Tombstone Mining and Milling Company, for a silver spike, which he made from the first product of the Toughnut mine; and the late William S. Oury presented it, with a speech of welcome, to the railroad officials and their staff. The presentation was followed by a grand banquet, at which 300 covers were laid. Tom Fitch, the silver-tongued orator, paid a merited tribute to the energy

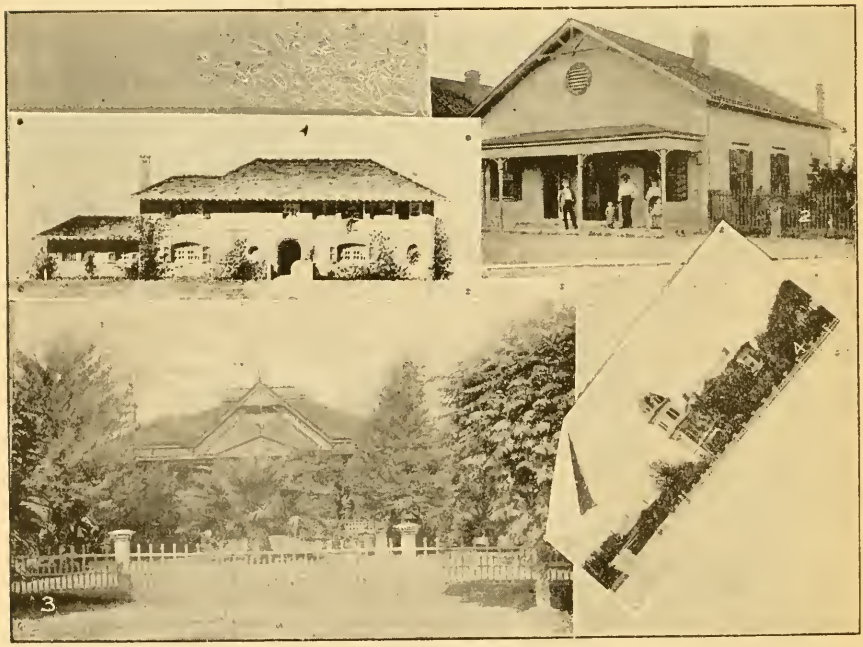
and enterprise of Huntington, Crocker and Stanford, in a speech filled with flowery rhetoric, and eulogized the Southern Pacific railroad as the "Black Horse Cavalry of the Plains, the great civilizers of the world!"

A Good Showing.

The mere statement of the revenue of a city is no indication of its condition or the character of its government, but the application of its income is all-important, and applying this test to Tucson we can make a showing that challenges comparison. It is hardly fair to assume that this was due to the personale of the city council, for in a small community, such as this, where everyone knows his neighbor, the public officers come very near representing the people.

The total assessed value of city property in 1896 was $1,400,000, upon which there was levied a tax of 1 per cent., or $14,000, to which we add the product of licenses, $8,000, making a total of $22,000. Of this amount there was expended by the city for street improvement about $10,000 (the balance being used to meet running expenses), besides which the property owners themselves expended at least $20,000 for the same purpose. This has been done without running into debt, the only outstanding city obligation being its bonded indebtedness of $28,000.

If this is not an indication of good management and progressive spirit we ask to be introduced to something that is.



TUCSON RESIDENCES: 1. Dr. W. H. Fenner.
2. R. T. Millar.
3. T. D. Satterwhite.
4. W. W. Williams.

Law and Order in Tucson.

The great West has always been the refuge for those daring spirits who found the restraints of polished civilization irksome to thought and action. Some of them were corrupted by evil associations and the weakness of generous impulses, but those of firmer character became the leaders of public life or the guardians of law and order, and the employment of such men in the constabulary force of the territory has made it one of the most law-abiding sections of the country. Our crime record compares favorably with that of any state or territory, and shows conclusively that we are a self-governing people.

To the casual visitor, as well as to the student of social statistics, the following report of crimes committed in Tucson at three widely separated periods will be interesting.

It has been specially compiled for us by the efficient chief of police, Mr. Sam Finley, who has established for himself an enviable reputation as one of the bravest and most gentlemanly guardians of the peace in the Southwest.

As samples of intervening years he shows the total number of arrests made by the Tucson police force during the years 1885, 1890 and 1896, and it will be seen that, taking into consideration the increase in population, that there has been a very material decrease. It must also be borne in mind that a large proportion of material was furnished by vagrants who resort here in the winter and for these we can not be held responsible. Mr. Finley has been a resident of Tucson for fourteen years, and feels justified in stating that there is no quieter or more orderly town in the West.

In 1885 there were twelve policemen and a marshal required to restrain the lawless element, while to-day there is but slight occupation for three policemen and himself. This in itself shows the great change that has taken place in ten years. The number of arrests made for carrying concealed weapons is comparatively small, and many of the offenders were merely technical violators of the law and not dangerous people at all.

It will, no doubt, surprise many, who have formed their opinions of us from reading the caricature stories of the *Arizona Kicker*, that murder an arson are almost unknown here.

STATEMENT OF ARRESTS IN TUCSON.

Offences.	1885.		1890.		1896.	
	Res.	Non-Res.	Res.	Non-Res.	Res.	Non-Res.
Drunk, and drunk and disorderly	218	37	214	23	237	54
Misdemeanors	40	1	31	2	57	6
Breach of peace	19	2	22	0	24	6
Assault and battery	20	1	30	1	0	0
Concealed weapons	5	1	9	3	9	4
Petty larceny	39	4	30	1	0	1
Robbery	9	0	0	0	0	0
Vagrancy	13	134	9	104	13	273
Insane	2	0	0	0	0	0
Grand larceny	12	1	0	1	0	0
Rape	1	0	0	0	0	0
Burglary	4	0	0	0	0	0
Assault to murder	7	0	4	0	0	1
False pretences	1	0	0	0	0	1
Felony	1	0	0	0	0	0

The Whipping Post in Tucson.

When the Mexican troops left Tucson after the transfer of the country, Juan Elias was alcalde, and continued to administer justice in the Mexican fashion, which was not satisfactory to the Americans, and these appointed Maj. Mark Aldridge, partner of Sol. Warner in the merchandise business, as justice of the peace. There was no jail in which to confine offenders and no provision for the expenses of the justice, so the whipping post was adopted. The sentences imposed a penalty of from thirty to sixty lashes on the bare back and the post was set up at the corner of Ott street. The offender received about half the penalty on the day of sentence, and after being enjoined to return next day for the balance was turned loose. Only one man ever reported.

In order to meet the expenses of the office, offenders who had the means were permitted to pay a fine, and this form of justice was maintained for about three years. The results were entirely satisfactory.

City Officers: 1. Sam. Finley, Marshal.
2. L. D. Chillson, Engineer.
3. C. T. Connell, Recorder.

Building and Building Material.

About 200 buildings have been erected and improved by additions during the last year, and at present there are eighteen in actual course of construction, not including those for which contracts are made but actual building not begun, and in this class are the A. O. U.W. building, to cost $30,000; the Masonic temple and opera house, $25,000; the addition to the university, $10,000, and several business blocks.

All our mechanics have had constant employment at good wages, ranging from $2.50 to $5 per diem.

We are indebted to Mr. J. Knox Corbett, the lumber merchant, for the following prices of building material now ruling here:

Lumber—Oregon pine, $27.50 per 1,000 feet; California pine, $25; surface redwood, $40, and rough redwood, $32.50.

Bricks of good quality, $8 per 1,000 laid in the wall.

Lime, $9 per ton; Portland cement, $9 per barrel of 400 pounds.

Mr. Corbett has been a resident of Tucson for many years and has never before noted such activity in all lines of business, and a stranger might infer that we were enjoying a boom. There is none, however, for no foreign capital is being used; whatever is spent comes from our own people, who have sufficient confidence in the future to invest their savings where they were made. This he regards as the surest evidence of permanent prosperity.

Cost of Living.

One of the most important considerations in the choice of a new home is the cost of living, and upon this subject we present the following, which with slight variations may be relied upon for all seasons of the year as the ruling retail prices for staple necessaries:

Bacon—Gold Band, highest grade, 12½ to 14 cents per pound; medium grade, 10 to 12 cents per pound.

Beans—Pink and white, 3 to 4 cents per pound.

Canned Goods—Best quality table fruits, 2½-pound cans, $1.70 per dozen; pie fruits, 2½-pound cans, $1.30 per dozen; tomatoes, 2½-pound cans, $1.10 per dozen; jams and jellies, 2-pound cans, $1.50 per dozen; salmon, 1-pound cans, $1.35 per dozen; oysters, 1-pound cans, $1.25 per dozen; corn, 1-pound cans, $1.10 per dozen; Eagle milk, $2.20 per dozen.

Butter—Best fresh, Arizona and imported, 35 cents per roll.

Coffee—Highest grade, green, 35 cents per pound; medium, green, 20 to 25 cents per pound; roasted, best Mocha and Java, 40 cents per pound.

Cheese—Best imported cream, 15 to 18 cents per pound.

Eggs—Ranch, 20 to 35 cents a dozen.

Flour—Eastern extra, per sacks of 50 pounds, $1.75 to $1.90 per sack; California, per sacks of 50 pounds, $1.50 to $1.75 per sack; local, per sacks of 50 pounds, $1.40 to $1.50.

Fruits—Raisins, London layer, 10 to 15 cents per pound; currants, imported, 10 to 12½ cents per pound; apples, evaporated, 10 to 12½ cents per pound; Peaches, evaporated, 10 to 12½ cents per pound; apricots, 12½ to 15 cents per pound. Fresh in season at reasonable rates.

Fish—Fresh from Guaymas and Los Angeles, 12½ to 15 cents per pound.

Ham—Gold Band, highest grade, 13 to 15 cents per pound; medium, 10 to 12 cents per pound.

Lard—Pure, in tins, 8 to 10 cents per pound.

Meats—Beef, alfalfa-fed, prime cuts, 10 cents per pound; porterhouse steaks, 15 cents per pound; sirloin steaks, 12½ cents per pound; ordinary, 6 to 10 cents per pound; corned, 8 cents per pound. Mutton, prime cuts, 12½ cents per pound; ordinary, 10 cents per pound. Veal, 10 to 12½ cents per pound. Pork, 12½ cents per pound; sausages, 12½ cents per pound. Game in season: Bear-meat, 12½ cents per pound; venison, 12½ cents per pound.

Poultry—Chickens, $4 to $7 per dozen; turkeys, 14 to 20 cents per pound.

Rice, 8 cents per pound.

Sugar—Cube, 13 pounds for $1; granulated, 14 pounds for $1; Golden C., 15 pounds for $1.

Salt—Table, 10-pound sacks, 12½ to 15 cents.

Soap—Ten-ounce borax, 5 cents a bar.

Tea, from 20 to 85 cents per pound.

Vegetables, fresh from local gardens, nominal. A large family can be supplied with vegetables in season at an average cost of fifteen cents per diem.

Potatoes, $1.35 to $2 per 100 pounds; onions, $2 to $3 per 100 pounds.

Dry goods and clothing can be purchased at a slight advance on Eastern prices.

Rents are reasonable, houses bringing at the rate of $5 per month per room or less, and furnished rooms $8 per month and upwards. Hotel rates vary according to service and accommodations from $1.50 to $4 per diem.

Restaurant living costs from $4 to $7 per week.

Fire Department.

Tucson's first serious fire took place in 1880, and led to the temporary organization of a fire department. This organization was recognized by the city in 1883, and formally established as the fire department of Tucson. A building and fire bell tower were erected at a cost of about $4,000, and an equipment supplied. This equipment now comprises a large chemical engine, hook and ladder and two hose carts with 1,000 feet of first-class hose. The water supply being poor and under very small pressure, the equipment was never efficient until the chemical engine was purchased by the city. The department has a membership of forty-five volunteers, who readily respond to every call, and the officers are: Chief, J. D. Boleyn; assistant, Frank Saladin; Wm. Reid, foreman and treasurer; secretary, Al. Ezekiels; steward, Rich. Brophy.

Teaming and Staging.

The yearly volume of inland freighting from Tucson by teams is estimated to exceed 2,000 tons of general merchandise, which, added to the amount shipped by railroad, incalculably greater, and that consumed locally, indicates the condition of business here. Stage lines run from here, making daily, weekly or semi-weekly trips to all important settlements, such as Nogales, Arivaca, Oro Blanco, Oracle, Quijotoa and Greatorville.

Lately a stage line has been established to meet the requirements of the mining companies operating in the mining districts south of the line, so that our facilities for communication are almost complete.

It is more than possible that, now that the Southern Pacific company has acquired the ownership of the Sonora railway, that a line of road will be run from Tucson to Calabasas, thus facilitating mining and agricultural operations in the Santa Cruz valley and adjoining country.

Learning Spanish.

One of the attractions of Tucson is the facilities for acquiring the Spanish language. It is spoken more or less by seven-eighths of our population, and this makes its acquisition seem easy.

While the language is several degrees easier than Chinese, it is difficult enough to give trouble, and you realize this when you have tried to master it in six lessons.

There is one sensible thing about it—the alphabet means something. You can not take a handful of letters and call them a word, as we do in

English. Utility is not sacrificed to architectural beauty, as in Chinese, and if you wish to spell a word, you enunciate its component sounds, if you happen to remember them, and get the letters. Desiring the word, you gently call the letters by their baptismal names, and you have it. In our own anti-phonetic language, the spelling is for protective purposes, but in Spanish we spell for revenue only!

The writer has been introduced to several patented methods of learning Spanish in a week or two, but never cultivated their acquaintance. Next to acquiring it before any other language, the best way is to live in Tucson for a year, employ a good teacher, and then work on it as if you had to do it for a living.

Our Public Schools.

Those who are familiar with the difficulties and dangers that surrounded the pioneers of Arizona can appreciate the constancy, perseverance and unselfishness of those who isolated themselves from civilizing influences and faced the dreaded Apache to establish here a system of public education that would rear a commonwealth of intelligent and responsible men and women. Where once stood crude adobe school houses, magnificent buildings now stand as monuments to the work of the early pioneers. Where once gathered a lonely few in constant dread of murderous Indians, may now be heard the joyous shouts of thousands of Arizona boys and girls as they enjoy their games on the school grounds, adorned with trees and flowers, and those who have lived to witness this grand transformation can well be proud of their noble work for Arizona.

Gov. P. K. Safford is justly deserving of the title of "Father of the Public Schools of Arizona," for although he was not in the territory when the first efforts were made to establish common schools, it was due to his personal efforts that the excellent system now existing was firmly planted.

The first public school of Tucson, and probably of Arizona was taught in the spring of 1869 by Mr. Augustus Brichta. The school was opened in an adobe building with dirt floor and roof, in the rear of the store now owned and occupied by L. Zeckendorf & Co. He enrolled fifty-five pupils, all boys. The trustees were Hon. John B. Allen, W. S. Oury and W. W. Williams.

The next session was opened in 1871, by Prof. John A. Spring, in a building on the northwest corner of Meyer and McCormick streets. He taught fifteen months and enrolled 138 boys, 95 per cent. of whom were Spanish-speaking. Messrs. W. F. Scott, Samuel Hughes and W. C. Davis were the school trustees at that time.

In 1871 the Sisters of St. Joseph established an academy for girls, furnishing free tuition to indigent pupils.

In the summer of 1872, Mrs. L. C. Hughes opened a school for girls in a house in Levin's park.

The following year, Miss Harriet Bolton, later Mrs. John Wasson, and Miss Maria Wakefield, now Mrs. E. N. Fish, took charge of the public schools of Tucson. The schools were kept in a building adjacent to the site of the present city hall.

The Congress Street school was completed in 1874, the trustees being Hons. R. N. Leatherwood, Samuel Hughes and Estevan Ochoa. The citizens of Tucson contributed liberally to the funds necessary to complete said building, and at one of the many socials given to raise money, a cake was sold and re-sold, until the proceeds aggregated more than $200. Hon. R. N. Leatherwood was the last purchaser, and after paying the price, distributed the cake among the school children. The lumber used in the porch was donated by the officers of Fort Grant, and was hauled, free of charge, by Tully & Ochoa.

Prof. W. B. Horton, a native of Scotland, and a graduate of a college of Edinburg, was elected principal of the Tucson schools in the fall of 1874. His assistants were Ygnacio Bonillas (now a prominent civil and mining engineer), who took charge of the boys' department, and Miss Packard, who conducted the female department.

Miss Packard was succeeded by Miss Nesmith; Miss Nesmith by Mrs. M. B. Aguirre, and Miss Nora Smith and Miss Sallie Wood succeeded Mrs. Aguirre.

In 1881 Prof. Geo. C. Hall and his wife took charge of the schools. Prof. M. M. Sherman and Miss Nora Smith were his assistants. The number of pupils enrolled in 1881 was 281. The number enrolled in 1882 was 353.

In 1883 the territorial legislature authorized the school trustees to issue bonds to the amount of $40,000, payable semi-annually, in ten years, to erect a high school building in Tucson. Bonds were readily sold, but it is estimated that before the building was completed in 1884 it had cost not less than $56,000.

Under the management of Prof. Hall, some important improvements were made in the Tucson schools. A course of instruction was prepared; the work of grading was begun; the schools were changed from having separate male and female departments to a mixed and graded school system.

There has been a considerable growth in our schools since 1885. In that year 1,330 pupils were enumerated, 668 enrolled and 278 in regular attendance; now there are 1,853 enumerated, 790 enrolled and 454 in regular attendance.

The yearly term of school varies from nine to ten months, and at present twelve graded teachers and a supervising principal are employed.

During the past year the schools have been carefully graded and adjusted to a course of study in keeping with modern requirements. Every effort is put forth to make the work of the schools practical and thorough, and Eastern people who locate here will find our schools equal or superior to those of their old homes.

The course of study of the Tucson public schools as now arranged covers three years of primary and five years of grammar school work, a total of eight years. The completion of this course prepares students for admission to the territorial normal school and to the middle year of the preparatory department of the territorial university. Those completing the course by public graduation are awarded a suitable certificate.

Tucson pays her grade teachers good salaries, and with a nine-months' term is able to command the best talent.

We believe more normal-trained teachers will be found among the corps of teachers of the Tucson public school than can be found in any other school in the territory. The normal schools of California, Rhode Island, Indiana and Pennsylvania are now represented in our teaching force.

At least three-fourths of all pupils in attendance can speak Spanish. With such an opportunity no bright pupil need complete the public school without having acquired a working knowledge of this beautiful and useful language.

The local supervision of our schools is vested in a board of three trustees, elected for three years, one member retiring each year. The present school officials are: J. Knox Corbett, president of board of trustees; Dr. W. V. Whitmore, clerk, and C. F. Richardson, member.

Taxpayers and parents or guardians of children of school age are qualified voters at school elections, without regard to sex or citizenship.

An Easter Morning in Tucson.

One of our Eastern visitors finds something to admire in one of our antique courtyards, and thus expresses himself:

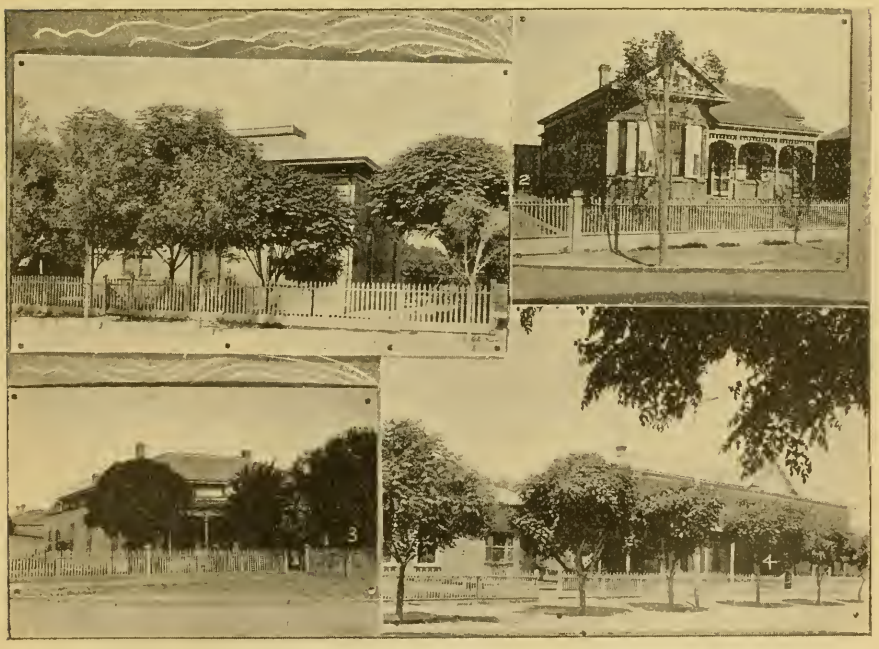
"Most of the old residences in Tucson have a bright garden patch behind the dull brown walls, and from my window, on this glad Easter morn, I look upon as pretty a scene as ever gladdened mortal eye.

"The balmy air is laden with the fragrance of flowers, while the linnets and cardinals trill so blithely that I can imagine myself in an aviary filled with canaries. Whoever made the statement that there are no songsters among our native birds had never visited Arizona.

"Above me is a soft, blue sky that shimmers in the rosy sunlight which flashes over the dark pine-clad ridges of the Santa Catalinas, and reaches me through the opalescent green of a fringe of *alamos*.

"Along one side of the courtyard is a hedge of rose blooms and pearly elder flowers; at the back rises a mud wall, barely seen through a row of pomegranate bushes, whose dark green foliage is stained with bright red blooms. On the right roses, pink and white, and oleanders, bloom; mignonette, sweet peas, pansies and other flowers mingle their colors and their perfumes blend.

"In the center rises a graceful ash and a drooping pepper tree, overshadowing lilac, fig and almond, while above the trellised walk the bright vine leaves quiver."



TUCSON RESIDENCES: 1. Dr. F. A. Odermatt.
2. Dr. Geo. W. Whomes.
3. Chas. R. Drake.
4. Dodge Block.

The Indian Industrial School.

This school for the training of Indian children was established by the Presbyterian Board of Home Missions, and opened January 3, 1888, under the superintendency of Rev. Howard Billman.

The school was designed to provide educational facilities for the Pima and Papago Indians. Though now separate tribes, they were originally one; their language is essentially the same and they intermingle in the most friendly way. They have ever been the invaluable ally of the American population against the fierce Apaches; are reasonably industrious and almost entirely self-supporting.

The present school force consists of the following: Mr. F. S. Herndon, superintendent; Mrs. F. S. Herndon, Misses Laura W. Pierson, Minnie Atwater, Lillian North, Alice Brandt, Bessie Menaul, Elizabeth Rowland and Mrs. Nellie Thompson; Mr. J. W. Martin, carpenter, and T. L. Vest, argiculturist.

The number of pupils last year was 125, comprising forty-seven girls and seventy-eight boys, the institution being limited to this number owing to the financial condition of the board, but 150 can be accommodated, and 200 were crowded in three years ago.

The school farm is one mile west from the school, on the left bank of the Santa Cruz river, and contains forty-two acres of land, all under cultivation.

This institution is doing a world of good and deserves encouragement. The pupils are educated in practical matters. The girls attain great proficiency in household duties and are diligent and faithful servants, while the boys make excellent farm hands and laborers.

St. Joseph's Academy.

Whatever may be our religious faith, we must respect those noble women who, casting aside the pleasures and opportunities of the outer world, devote their lives to the moral and intellectual advancement of youth, and when their efforts result in affording the young the best educational advantages at a minimum cost, they rank among our great public benefactors. In this category we classify the Sisters of St. Joseph, who in 1870 founded in Tucson an academy for young ladies, and though the institution is under the auspices of the Catholic church, it numbers among its students members of other denominations from all parts of the country. The first convent was near the old cathedral, but the present establishment is a handsome structure facing military plaza, which will cost, with the alterations now being made, about $40,000.

The Public Library.

The social condition of a community is best shown by its works; the attention devoted to institutions designed to promote its moral and intellectual welfare, and by this rule Tucson not only ranks first in the territory, but excels many of the towns of equal size within a hundred miles of Boston.

The Tucson public library was created by ordinance dated the 5th day of June, 1883, but the legislative decree carried no appropriation, and the matter slept till the summer of 1886, when the Tucson Library Association (a private organization) conveyed to the city of Tucson, for the benefit of her citizens, all its property, provided the city furnished accommodations. The city council set apart the upper story of the city hall for the exclusive usê of the public library, and in July the institution opened with a catalogue of 759 volumes, the trustees being Messrs. J. S. Mansfeld, C. D. Poston, C. B. Sessions, Harry Paterman and F. W. Grey, and Mesdames Anderson, W. E. D. Scott, Heil Hale and S. M. Manlove.

We will not chronicle each step of the upbuilding of this institution, but point with pride to its present condition. We now have over 3,000

volumes of the best literature, accessible to all who desire to use them. The library has commodious quarters in the upper story of the city hall, lighted by electricity, with a librarian in attendance six hours of the day in winter and a shorter session in summer. It is the only public library of any size in the territory and we point to it with just pride as an evidence of our social qualifications. It is not purely ornamental, either, as the visitor will find upon examination of the records, *the books are read,* nearly all of our young people being constant borrowers.

The present board of trustees consists of Messrs. H. D. Underwood, Rochester Ford, H. W. Fenner, and Mesdames W. C. Davis, F. A. Warren, B. M. Jacobs and Albert Steinfeld, the librarian being Mrs. Batte, whose intelligence and affability do much to sustain the popularity of the institution. She is a great reader herself, and knows that somewhere among the volumes there exists a balm for every ill; books to stimulate and books to soothe; books for instruction and books for ennui, and she can prescribe like a physician for those who want direction.

Tucson's 400.

Our lady readers will be interested in learning something of our "society." Of course we have our "400," but the dividing line is not firmly drawn, as people's antecedents are generally well known, and undue pretension works its own downfall. We have had no genuine scandal for years, and this has compelled the few old gossips (male and female) who have foisted themselves upon us, to draw upon their imagination for material. They are quite harmless, however, as no one believes them, and the very people they assail are generally the purest and the best. Otherwise the people of Tucson are the most liberal and delightful entertainers in the country.

As the conditions referred to make pretension absurd and scandal ridiculous, everything is done in a free and generous manner, peculiarly Western, and yet with consummate elegance and good taste. There is so much musical and other talent that during the winter season the evenings at home, the multi-colored and polyglot teas, the card parties and other *divertissements,* afford a round of intellectual enjoyment.

Our ladies dress in the latest fashions and are, on all matters of taste, fully up to date. Sealskin cloaks are not worn, and lady visitors can limit their wardrobe to spring fabrics, with suggestions of summer lightness, with a wrap of medium weight for evening wear.

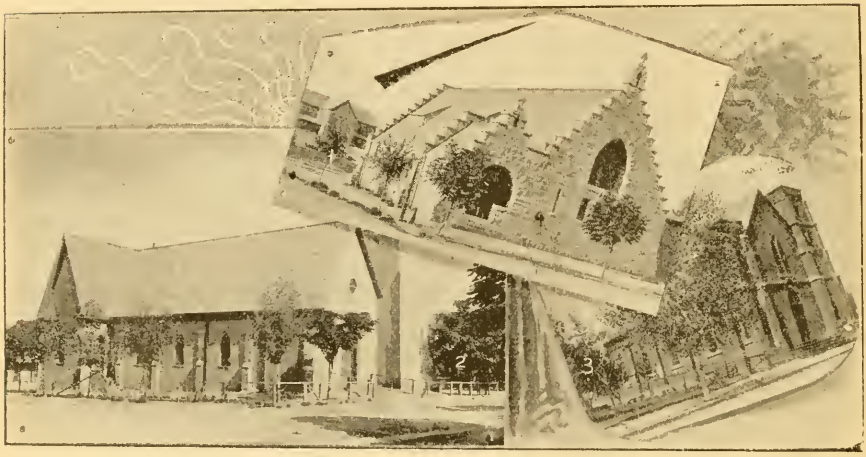
Philarmonic Club of Tucson.

It is now nearly nine years ago that a number of music-loving Spanish-Americans, under the leadership of Mr. Fred. Ronstadt, organized the "Club Filarmonico Tucsonense," and to this gentleman's patience and energy are chiefly due its permanence and proficiency. Its instruments are the best procurable, and as an interpreter of Spanish and Mexican music it has no equals in the United States and few superiors in Mexico. It has given public concerts in different parts of Arizona and in the principal cities of Southern California, being everywhere received with enthusiasm. Its members are all Spanish-Americans, and no brighter or more intelligent faces can be found in any community. The club has lately amalgamated, for musical purposes, with the militia band, and during the summer season the two unite to give public concerts in one of the city parks twice a week. The officers of the club are: Frederico Ronstadt, president and leader; Rufino Velez, secretary and treasurer, and Miguel T. Carrillo, Gerardo Manzo and Carlos Jacome, directors.

Churches.

Grace Episcopal Church.

On the 30th of November, 1881, a small company of ladies interested in the establishment of an Episcopal church in Tucson met and organized a society for its promotion. In May, 1883, a lot for a church building was purchased at a cost of $1,000, and seven years later the construction of a church building was begun, the funds being obtained chiefly from private subscriptions, Mrs. Marian Calvert Wilson having alone obtained nearly $1,000 for this purpose. On Easter morning, April 2, 1893, the Rev. W. L. Githens conducted the first service in the new church, which was dedicated by Bishop J. Mills Kendrick in the presence of a large congregation in 1897. The request to consecrate was read by Mr. J. Geo. Hilzinger, on behalf of the church committee.



Tucson Churches: 1. Episcopal
2. Congregational.
3. Methodist.

The residents of Tucson to whom the members of the Episcopal church are most indebted for the carrying out of this great work of church building, and not already mentioned, are Mesdames Nellie Pomroy, James Buell, W. T. Gibbons, B. M. Jacobs, C. M. Burkhalter and J. M. Ormsby, Messrs. J. M. Ormsby, Chas. R. Drake, H. D. Underwood, J. K. Gooding, C. M. Burkhalter, F. A. Gully, Thos. F. Wilson and Selim M. Franklin.

The present minister is the Rev. V. O. Gee, of Bowling Green, Ky., who assumed charge in March, 1896, and the church committee consists of the following gentlemen: W. W. Williams, warden; C. M. Burkhalter, M. P. Dodge, D. F. Brown and J. Geo. Hilzinger.

In the death of Mrs. S. L. Pomroy, in 1895, Grace church met with a great loss. She was one of its founders and always an efficient member.

For church work there is a Ladies' guild and the Bessie Edgar Memorial guild of young ladies, members of the congregation. The church is well furnished and carpeted, and the services are conducted regularly throughout the year, except for a short period during the heated term.

Methodist Episcopal Church.

It is now eighteen years since the Methodist Episcopal church of Tucson was organized by the Rev. Geo. H. Adams, the first superintendent of Methodist missions in Arizona. Among the first to give their names for membership were Mrs. E. J. Hughes, wife of ex-Gov. L. C. Hughes, and Mrs. Adria Buckalew.

Since its establishment there have been ten pastors, the best known being the Rev. J. F. Berry, editor of the *Epworth Herald*, and Rev. C. L. Bovard, superintendent of the New Mexico missions. The present pastor is Rev. E. R. Foley, and the church has a strong membership, composed of our most respected and representative families. It is aggressive and well organized, with all auxiliary helps, including a live Epworth league and a Ladies' Aid society.

The church lot, corner of Stone avenue and Pennington street, has a frontage of 100 feet on each street. It originally cost $600, and is now worth as many thousands. The church building is of brick and was erected in 1881, upon designs furnished by Mr. L. D. Chillson. Attached to the church is a commodious parsonage, built the following year.

The Congregational Church.

The local organization of this church was perfected November 20, 1881, with a membership of eight persons, and it has grown steadily in numbers and influence. The membership is now one of the largest in Tucson. The Rev. J. Bowron will shortly assume charge of the congregation.

The church building is an imposing edifice, facing one of the city parks, and the interior is tastefully furnished.

The Baptist Church.

The first Baptist church in Southern Arizona was organized April 7, 1881, with six members, including the pastor of the new congregation, Rev. U. Gregory. Later on a building was erected on Stone avenue, and the church organization continued for several years. With the departure of the pastor, in 1888, interest in the work weakened, and was not revived until lately. The Rev. P. Aulick took charge in July, 1897, and under his ministrations the church is expected to become an important factor in the moral and spiritual education of the people.

The Catholic Church.

The Roman Catholic church is the leading religious establishment, with the largest membership and the most elegant edifices. The old cathedral has lately been abandoned, and services are regularly held in the new building on Stone avenue. This is constructed of brick, with gray stone facings, and the design is elegant and impressive. It was dedicated February 7, 1897, with appropriate ceremonies, in which two archbishops, two bishops, one vicar, and over twenty priests took part. The cathedral is not yet finished, lacking the towers, but the energetic Bishop Bourgade will not rest until the magnificent monument is completed.

CATHOLIC CATHEDRAL.

FRATERNAL ORGANIZATIONS.

Fraternal association is the moral and intellectual sunshine which warms the hidden germs of brotherhood into life, and matures them to achievement. It is the lever which will raise the world out of the quagmire of ignorance and selfishness and perfect the race. It strengthens the bonds of respect and love, smooths our paths and makes us hopeful and daring in the assurance of sympathy and appreciation.

In no part of the country are the fraternal organizations so generally supported as in Tucson. They are all in a flourishing condition and their meetings well attended. True fraternity has always found a freer expression in the great West, and striven to express itself in organized form. The bond of fraternity is here knit closer by a community of interest that does not exist in large cities where class distinctions are more plainly manifested.

The Masonic Bodies.

These are well represented, and hold regular and special meetings.

Tucson Lodge No. 4, F. and A. M., has regular communications on the second Friday of each month. Officers: Geo. J. Roskruge, W. M.; L. K. Hart, secretary. Membership, 80.

Tucson Chapter No. 3, Royal Arch Masons, meets the last Friday of each month. Officers: G. M. Williams, H. P.; Geo. J. Roskruge, secretary. Membership, 45.

Arizona Commandery No. 1, Knights Templar, has stated conclaves the first Friday of each month. Officers: K. L. Hart, E. C; Geo. J. Roskruge, recorder. Membership, 50.

Santa Rita Lodge of Perfection No. 1, A. and A. S. R., meets irregularly. Geo. J. Roskruge, ven. master; H. D. Underwood, secretary. Membership, 35.

Tucson Council No. 3, Royal and S. M., meets irregularly. Geo. Shand, ill. master; J. M. Ormsby, secretary. Membership, 21.

The first meeting of Masons held south of the Gila river, of which any record has been kept, was composed of the following brethren: A. C. Benedict, Martin Maloney, Jacob S. Mansfeld, Joseph B. Creamer, R. N. Leatherwood, Charles T. Etchells and George J. Roskruge, who, on the 11th of April, 1875, met at the house of J. S. Mansfeld "for the purpose of discussing the subject of forming a Masonic club at Tucson." At a meeting held the week following the Tucson Masonic club was formed, and Brother A. C. Benedict was elected chairman, and George J. Roskruge secretary. The organization was kept alive until January, 1881, when it was resolved to petition the M. W. Grand Master of California, who, on the 17th day of February, 1881, issued a dispensation authorizing Ansel M. Bragg as W. M., George J. Roskruge as S. W., and Abraham Mark as J. W., and nineteen other brethren to form "Tucson Lodge," and on the 15th of October, 1881, a charter was, by the M. W. Grand Lodge of California, issued to the same officers and the lodge placed on the roll of the Grand Lodge of California as "Tucson Lodge No. 263." At the formation of the Grand Lodge of Arizona, on the 25th day of March, 1882, Tucson was designated as No. 4 on the roll of Arizona lodges.

Independent Order of Odd Fellows.

Pima Lodge No. 3 meets every Tuesday and has a membership of 65. The officers are: P. S. Hughes, N. G., and J. J. Hill, secretary. Attached to this lodge is a lodge of Daughters of Rebekah, officered and controlled by the lady relatives of members of the order, who materially assist in advancing the welfare of the order.

Ancient Order of United Workmen. This order has a local membership of 250, and is one of the most popular in Tucson. Its meetings are made attractive by the introduction of social features designed to amuse and instruct the members. The lodge meets every Wednesday and the present officers are: Geo. W. Whomes, M. W.; F. B. Wightman, recorder, and W. E. Felix, financier.

Attached to the parent organization is a lodge of the Degree of Honor, officered and controlled by the lady relatives of members of the A. O. U. W.

The Knights of Pythias. This order is represented by *Tucson Lodge No. 9*, which holds stated conventions every Monday. The officers are: C. T. Connell, C. C.; V. O. Gee, Vice C. C.; W. R. Kitt, prelate, and Jos. C. Perry, K. of R. and S. Membership, 90.

Woodmen of the World. San Xavier Camp was organized April 29, 1896, and now has an active membership of 45. It meets every alternate Thursday. Officers are: F. A. Odermatt, P. C. C.; R. W. Arthur, C. C.; I. Neustadter, C., and Pedro Pellon, B.

Other Organizations. In addition to these are the following organizations, fraternal and benevolent: The Spanish-American Alliance, Women's Universal Benevolent Association, St. Vincent de Paul Catholic Benevolent Society, Good Templars, Grand Army of the Republic, Pioneer and Historical Society, United Order of Mechanics, and a full line of railroad benevolent and protective orders.

Building and Loan Associations. It is certainly apparent to the most casual observer that our city has steadily improved during the last eight or nine years, so that visitors, new-comers, and even old residents do not hesitate to remark that Tucson now presents the appearance of a thriving and enterprising city. The source and cause of this steady progress in the face of dire business depression is known to all stockholders in the building and loan associations. Neither banks, business men nor private individuals cared to loan money at a moderate rate of interest and for long periods of time, so that only such inducements as those offered by these associations could have brought about the amount of home building and home improving that has taken place in this city during the time stated.

Tucson has two such associations, of which it is justly proud. The original and the first to complete a series is the Tucson Building and Loan association, and we present the following report thereon, prepared by the secretary, Mr. J. A. Black:

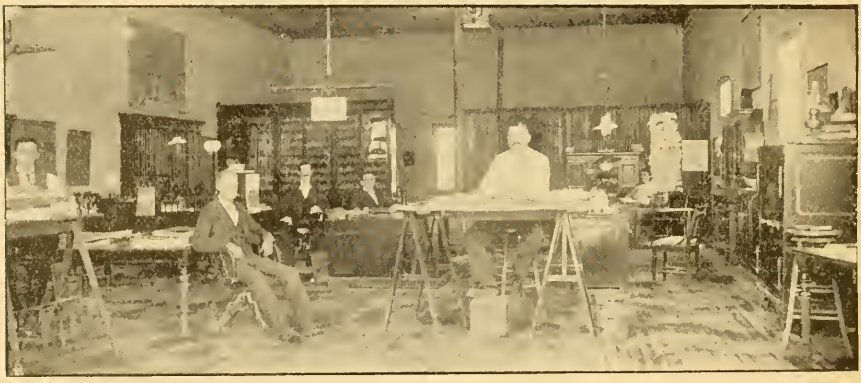
"This association early laid down a most liberal policy towards its withdrawing stockholders, and has consistently acted with the utmost leniency in all cases of unavoidable foreclosures. Too often the cases of withdrawing stockholders in this class of associations are made a most fruitful source of profit, and foreclosures are handled under the letter of the law, and thus to the delinquents' total and inequitable loss of property. Yet notwithstanding such liberal (but just and fair) conduct, the Tucson Building and Loan association has matured and paid off its first series in 104 months, the actual number of working or earning months, however, being but 102, as shown by the early records.

"The money invested in the association has therefore had an earning capacity of 21 per cent. per annum, which breaks the record of said institutions on the Pacific coast, if not in the United States.

"After the lapse of 104 months, during which time the country has suffered one of the severest financial panics and endured hard times for one of the longest periods in its history, the Tucson Building and Loan association shows a most successful record, with no losses and with but one piece of real estate actually in its possession by reason of foreclosure suit. This property is well worth the money invested in it, and has always returned good interest in the shape of rent."

The second association, called The Citizens, is in a highly prosperous condition, and has been equally active in guarding the interests of its stockholders. Although worked on a slightly different plan, the secretary, Mr. Gus. A. Hoff, prophesies an equally satisfactory result, and possibly a better one.

To these associations is due much of the material progress of Tucson during the past decade, and this good work continues to be felt.



Interior Surveyor General's Office.

The Surveyor General's Office.

The office of surveyor general was first established in Tucson in July, 1870, upon the appointment of Hon. John Wasson as surveyor general. He served three terms, retiring in favor of Hon. J. W. Robbins, in August, 1882. This gentleman died November, 1883, and the Hon. Royal A. Johnson was appointed to fill the vacancy, and held the office until December 11, 1885, when a change of national administration inducted the late Hon. John Hise into the official chair. Mr. Hise retired to civil life in July, 1889, and Mr. Johnson resumed the control that had been interrupted by the failure of the republican party to count enough votes. He served his term of four years, and another political failure caused his removal in favor of Hon. Levi H. Manning, who served until April, 1896, and then resigned, either to prove that a good democrat can accomplish the feat or to give his personal attention to his large mining interests. He was succeeded by the Hon. Geo. J. Roskruge, who will probably soon succumb to the uncongeniality of a republican administration.

The present subordinates are W. E. Murphy, chief clerk; Raymond H. Satterwhite, assistant clerk, and August A. Lysight, mineral clerk.

Colonel J. H. Martin.

The Boys in Blue.

Without desiring to draw any invidious distinctions, we believe that the real patriotism of the country is chiefly found outside of the large cities, and the heart of the great West throbs with devotion to Old Glory.

The organization of militia companies in Arizona is due to the desire of our young men to get closer to the flag of freedom and draw inspiration from its starry folds. That they are not parlor patriots, but men ready to offer their lives in the cause of their country in defense of law and order is shown by some late instances which we ask the reader's permission to refer to.

When the Fitzsimmons and Maher prize fight was expected to "come off" on Arizona soil, the militia companies were ordered to the front, and the following extract from the report of Maj. R. Allyn Lewis, acting inspector general shows that they can be depended upon in time of need :

"I desire to call your attention to the promptitude of these companies in preparing for service in such short time, neither officers nor men having any idea where they were going, nor for what service. They were absolutely unprovided for field service, having no overcoats, blankets, haversacks, cooking utensils or other camp equipage. They had nothing but the regulation uniform, their rifles with twenty rounds of ball cartridges, and a determination to go where they were needed and do their duty as soldiers. Every man who could be reached by his company officers reported for duty. The conduct of companies D and F during five days of field service is especially deserving of commendation, and this was the first time they had ever been called out."

It will not surprise the reader to learn that companies D and F came from Tucson and are good samples of our young men. Company D was organized in 1889, followed in 1890 by the organization of company F.

The present membership of company D is forty, and of company F, thirty-five, and this does not include the militia band of thirty-eight pieces. The officers of company D are: Emanuel Drachman, captain; Bert Gray, first lieutenant; Wm. Powers, second lieutenant. Of company F: J. M. Trayer, captain, and Heraclio Hutton, first lieutenant.

The band is composed chiefly of young people who have become skillful musicians during their three years of practice and give public concerts during the summer months.

There is no territorial law providing for general officers. The regimental colonel and senior officer of the guard is J. H. Martin, one of our prominent lawyers and secretary of the board of regents of the University of Arizona, and J. A. Black is major of first batallion.

Tucson Mineral Springs.

The springs of Agua Caliente, Monkey Springs, and those of Walnut cañon are fairly well known to our people, but few of them are aware that any exist in the immediate vicinity of Tucson.

Two and one-half miles west of Tucson, at the base of Sentinel peak, is a natural spring, strongly impregnated with sulphur and other minerals, which years ago was reputed to have fine medicinal properties, but in the lapse of years it has been forgotten.

Our Newspapers.

There are two daily newspapers published in Tucson, the *Citizen* and *Star*, both representative sheets and well supported.

The *Citizen* was founded in 1870, and has been continuously published under different managements. The present editor and proprietor is the Hon. Herbert Brown, a trained newspaper man, who has been prominently identified with the interests of Arizona for many years. He is curator of the territorial museum and an authority on the ornithology of Southern Arizona, of which subject he has made a special study. His collection of birds, donated to the museum, is one of the most perfect and complete in the country. The *Citizen* is the exponent of republican politics and has a large circulation. It is published every evening, Sundays and holidays excepted.

The *Arizona Daily Star* was established in 1877 by the Hon. L. C. Hughes, its present editor and proprietor. It was the first democratic journal in the territory and has always been the ablest exponent of the principles of that party. It has been foremost in advocating all issues designed to promote the welfare of our people and has done more to mould public opinion than any other newspaper in the territory. It has a large circulation, and being a morning paper it reaches all the principal railroad points on the day of its issue. Mr. L. C. Hughes is a veteran of the civil war, served two terms as district attorney and two terms as probate judge of Pima county, was attorney general in 1875 and governor of the territory under the last democratic administration. He is ably assisted by his talented wife, who opened the first public school in the territory in 1872.

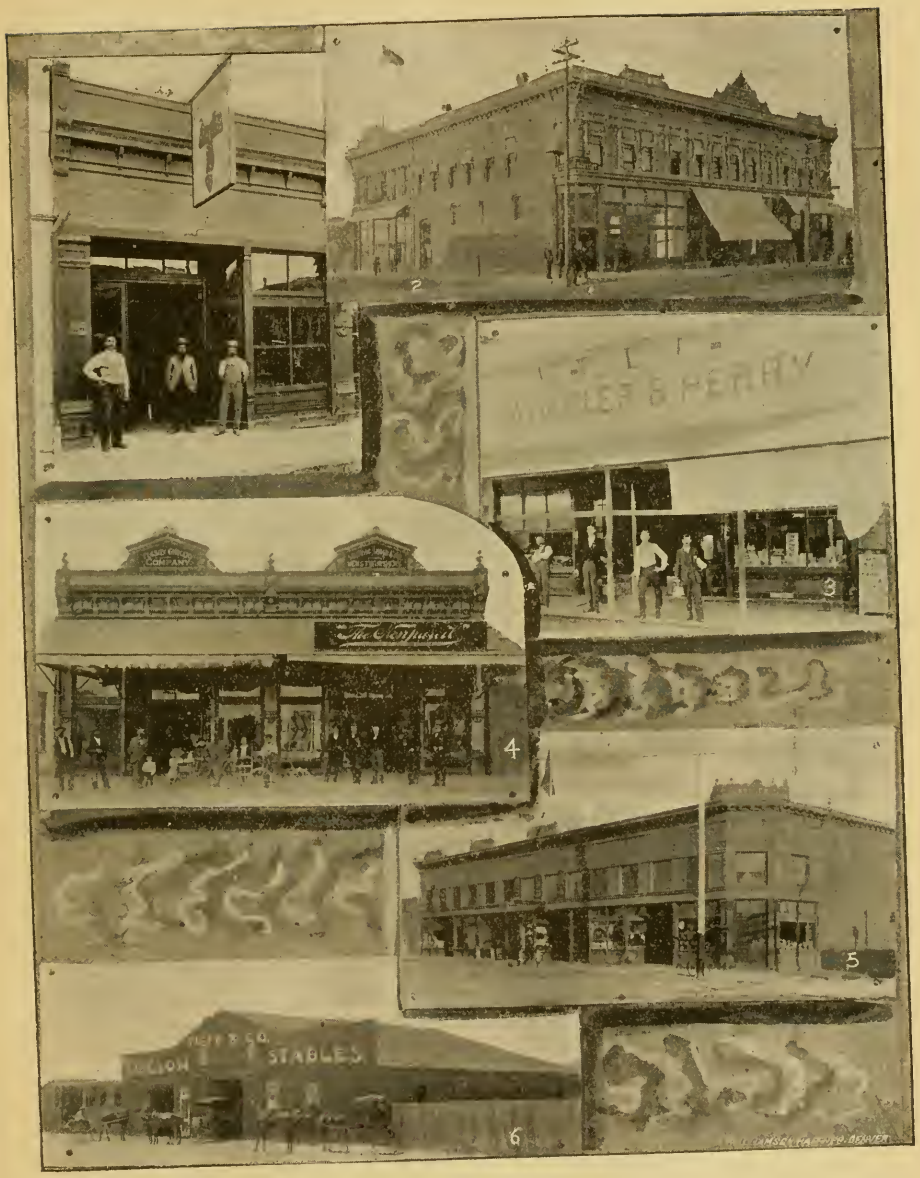
Both papers issue weekly editions which circulate in all the mining camps and outlying agricultural districts.

There are also two weekly papers published in the Spanish language, which are liberally patronized by our Spanish-American population. *El Fronterizo* is conducted by Señor Carlos Y. Velasco, a very able writer, and has a large circulation in Southern Arizona and Sonora. *La Luz* is edited by Mr. Chas. H. Tully, a versatile writer, formerly principal of the Tucson public schools, and while a newcomer in the field of journalism, it is meeting with liberal support. Both papers are able exponents of the most advanced Spanish-American thought and ably contribute to the upbuilding of this section.

The Natatorium.

Among the improvements in course of construction we must not omit a description of the natatorium, which is expected to be in running order by the middle of August. The building will be both substantial and ornamental, and the interior arrangements of the latest designs. The swimming tank will have an area of over 3,000 square feet and contain 170,000 gallons. The water supply will be pumped from a well, 200 feet west of the building, and a pipe line connecting with the plant of The Arctic Ice Company will furnish a supply of warm water when needed. There will be thirty or more private bath rooms, and Turkish and Russian bath departments.

Messrs. Barnes & Martin, the well known lawyers, are the owners, and their reputation as clear-headed business men ensures the public an elegantly appointed and well managed institution.



TUCSON BUSINESS BLOCKS:

1. V. M. Cordova.
2. Radulovich Block.
3. Wheeler & Perry.
4. Tucson Grocer Co.
5. Kohler Block.
6. Neff & Co. Stables.

There is Light.

There are fifty-two stockholders in The Electric Light and Power Company of Tucson, and they are all our own people, and all so pleased with their investment that none of the stock is for sale. The company was organized some years ago with a capital of $60,000. The plant comprises two engines, 135 and 90-horse power; two boilers, 130 and 110-horse power, and four dynamos, really two entire and separate plants, thus securing the public against accidents. At the present time there are maintained about 2,000 incandescent lights, twenty-five arcs and twenty electric fans, to which numbers constant additions are being made.

TWO OF THE DEPARTMENTS OF ROS. BRENA'S STORE.

A Spanish-American Merchant.

Among our business men are several of Mexican birth, who are the peers of any merchants in the land. They lack nothing of enterprise and foresight, and add to their other business qualifications an unfailing courtesy that is as natural to them as it is pleasant to their patrons.

Mr. Rosario Brena conducts one of the largest wholesale and retail general stores in Tucson. He began in a small way about ten years ago, and by careful attention and intelligent management has extended his trade over the whole of Southern Arizona, and north as far as Pinal and Gila counties. He is also largely interested in ranch property and cattle, and is generally in touch with our resources.

A New Opera House.

If the social condition of a community can be measured by the extent of its appreciation of the fine arts, Tucson must certainly take high rank, for in no city of the Union are these so generally cultivated and appreciated.

Our need of a good opera house has been felt for a long time, and several organized efforts have been made to meet it, but it remained for individual enterprise to take the matter in hand and carry it to a successful issue.

Mr. A. V. Grosetta has been for years one of our most progressive citizens. His fortune has been made among us and all his investments are here. His latest and most brilliant enterprise is the erection of an opera house on Congress street, after plans made by the well known theatre architect, Sydney Lovell, of Chicago.

It is designed to seat 900 people and will cost not less than $25,000. The scenery will be of the highest grade, painted by the great scenic artists,

Sozman and Landis, of Chicago, and the stage settings, seats and furnishings of the most modern designs. Hot-air furnaces will heat the house in winter, and ventilating devices will make it pleasant during the heated term. The auditorium will be so arranged as to make a combination dance floor and seats.

He has also arranged with the Masonic fraternity of Tucson for the erection of the first exclusive Masonic lodge room in the Territory in the same block.

Mr. Grosetta's enterprise and abilities are not confined to building investments. He is the principal shareholder in The Tucson Grocery Company, the owner of a large and flourishing orchard in the valley, and interested in other public enterprises.

Eagle Flour Mills.

Flours of the Desert.

Any evidence of enterprise indicates the social and commercial strength of a community, and we point with pride to the evidence offered by the Eagle flour mills, one of the largest and best appointed in Arizona. The original mill was built in 1872, but has been enlarged and improved by the present owners. Mr. Leo Goldschmidt, the general manager, is also interested in mines and real estate. He has laid off some lots for villa residences in the northern part of the city, and will set the pace by erecting a handsome residence at a cost of $5,000.

Regulated by Law.

While it is a matter of regret from one point of view that gambling should be licensed in the territory, it is a vice that is common to all frontier sections, and it is wiser to control it by law than let it flourish secretly. We are proud to say that the influence of the community is such as to rob gambling of some of its worst features. In the first place the resorts are in the hands of men who know that their license will not be renewed to them if their places are not conducted properly, and for this reason nothing is tolerated of a disreputable nature. Everything is straight and orderly and open to inspection. This is the true Western method, and low dives and deadfalls, where crime is rampant, are peculiar to the low resorts of the crowded Eastern cities. The Legal Tender, of Tucson, of which Mr. J. J. Walsh is proprietor, is a model of good management, and while such a business is considered legitimate, it is some satisfaction to know that it is in the hands of a careful person.

A Sweet Place.

The toothsome delicacies of the confectioner's art are always pleasant, and in summer, ice cream and refreshing drinks are necessities. Mr. P. A. Stollar knew this when he opened the largest confectionery and ice cream parlors in the southwest on Congress street. He furnished the store in metropolitan style, and the result has justified his expectations. The retail trade has created a demand for fine confectionery, and compelled him to add a wholesale department for the country trade. He thinks Tucson is "the sweetest place on earth."

Quite Satisfied.

Among those who came to stay with us, we reckon Dr. Geo. Whomes, who arrived here six years ago and found everything so agreeable that he promptly decided to remain, and emphasized his decision by erecting a pretty modern cottage on the principal residence street. Being a skillful dentist, he has done well professionally, and is entirely satisfied with his environment.

Others Follow.

The distinction of building the first compartment house in Tucson is an indication of enterprise and foresight in the builder. Mr. H. B. Dodge has set the pace in this direction, and others will follow. He has been here fifteen years and has always tried to lead on progressive lines. The Dodge block will long remain a monument to his enterprise. He is interested in mines in the Oro Blanco district, and a stockholder in both of our building and loan associations.

Only One Failure.

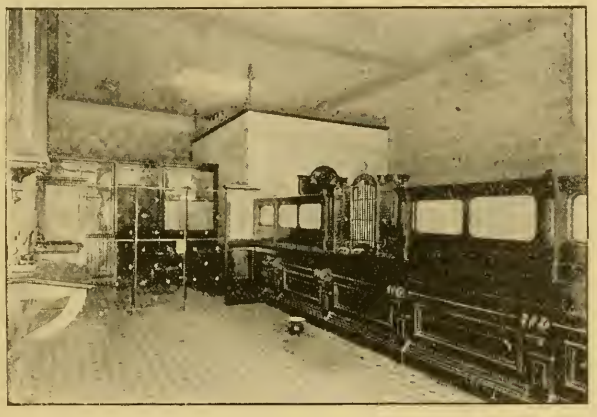
Among our self-made men, who have increased their business from year to year by unremitting attention and the exercise of good judgment, is Mr. Julius Goldbaum. He handles high grade wines and liquors and carries the best assortment of lunch goods in Arizona.

He has found time to make some fruit culture experiments within the city limits, which demonstrate the capabilities of our soil. It is only an acre of land, but this is sufficient to show what lovely homes can be made in Tucson. The grape is a success, both in quantity and flavor, almonds do well, so do peaches, apricots and green gages. The only failure he notes is the cherry, which does not thrive here below an altitude of 4,000 feet.

1. Interior Fleishman's Drug Store. 2. Office Singer Sewing Machine Co.

Two Hundred per cent. Increase.

No better evidence of the prosperous condition of Tucson can be offered than the remarkable growth of the business of the Consolidated National Bank. This institution, like every other, is our own, built up on home capital and managed and controlled by our own people. It was originally started in 1885, by Mr. D. Henderson, now president of the Santa Clara Bank, California, who effected a consolidation with the Bank of Tucson two years later, and shortly afterwards transferred his interests to the present organization, by whom it was nationalized in 1889. The present officers are M. P. Freeman, president; W. C. Davis, vice president, and H. B. Tenney, cashier. A comparison of their statement given to the comptroller of the currency last May, with that made for the same month in 1896, shows an increase in deposits from $129,480 in 1896 to $352,251 in 1897, or two hundred (200) per cent. This is the largest line of deposits of any bank in the Territory. Its paid-up capital is $50,000, and cash resources $275,891.



Interior Consolidated National Bank.

Lacks Support.

Mr. ———— depends for his living upon the interest he receives on his money, and complains that our people are already so prosperous that they refuse to pay the usual 1½ or 2 per cent., and this independent spirit is fomented by the presence of Eastern money at 10 per cent. and less. These conditions compel him to deprive himself of many luxuries he is accustomed to, to the detriment of his health, and while he has done everything in his power to retard the advancement of the community, he feels that he has not been properly supported, and proposes to organize a "Hold-Back Club."

Jewelry and Art Novelties.

We have never seen a finer display of modern jewelry and art novelties than in the store of the H. A. Zeckendorf Co. Mr. Zeckendorf is the son of one of the founders of the pioneer firm of L. Zeckendorf & Co., and was educated in Europe, where he learned the art of watchmaking. He was afterwards a pupil of H. H. Heinrichs, the celebrated chronometer maker of New York, and was special correspondent at the Paris exposition for the New York Jewelers' Weekly. His knowledge of all matters pertaining to his profession is both theoretical and practical, and no New York jeweler more elegantly displays the triumphs of his art.

The Legal Fraternity.

The bar of Tucson ranks second to none in Arizona, and is specially distinguished for its ability and integrity, and its members are frequently called to all parts of the territory to conduct important cases. The bench is ably filled by the Hon. Geo. R. Davis, Associate Justice of the Supreme Court of Arizona and Judge of the First Judicial District, who came originally from Wapakoneta, Ohio. He is the youngest of the newly appointed Federal judges, but he brings to Arizona a ripe experience, deep learning and a splendid record for upright and courteous dealings. He is a personal friend of President McKinley and although this is his first political office, he has always been an active Republican, and was the first delegate elected from Ohio to the last National Republican Convention. The Judge will hereafter make his home in Tucson with his wife and two children. He is favorably impressed with the climate and resources of Arizona and hopes to see statehood conferred upon it during his term.

Hon. Geo. R. Davis.

A Good Authority.

Mr. J. A. Black established his jewelry business here in 1883 and has always been prominent in public affairs. As commissioner of immigration, he prepared and published the best review of our resources, and was one of the founders of the Phoenix Republican. He is now secretary of the Tucson Building and Loan Association, and we are indebted to him for valuable information in the preparation of this work.

Low Rate of Insurance.

The question of insurance is at the foundation of more of our business and social affairs than we think. Fire and life insurance are the more familiar phases of our desire to become our own special providence, and Mr. H. D. Underwood has been their apostle in Tucson for the last fifteen years. He calls our attention to the fact that the rate of insurance in Tucson is the same as in San Francisco, for the reason that underwriters consider us a good risk. He also handles real estate and mines, and is one of our best-posted men on these subjects. During the past thirty days he has sold more city property than in the previous three years, and all of it to people who intend to build homes for themselves. There is also a lively movement in mining properties. Extensive developments are being made and the prospects generally were never better.

Telephone Facilities.

County Treasurer Chas. F. Hoff, who is also manager of the Tucson, Nogales, Prescott and Flagstaff telephone stations, and one of the most enterprising men in the Territory, informs us that in the matter of telephone communication, Arizona is not a whit behind the rest of the world. There are about 150 subscribers in Tucson, and the central office is kept constantly busy answering calls. He is now making arrangements to connect the different important mining camps with Tucson and Nogales and will probably build a line south to the thriving mining districts across the international line. The opening of the new custom house at Sasabe will give an impetus to business between Tucson and the Altar district in Sonora, and greatly facilitate the operations of the Plomo and El Grupo mining companies, in which our people are vitally interested.

Mr. Hoff is a man of ideas and a fluent writer. We regret that a valuable contribution from his pen has been unavoidably crowded out of this issue.

No Idle Men.

People who have been accustomed to hear the woes of the unemployed continually dinned into their ears will find in Tucson a refreshing change, for here, notwithstanding our proximity to the cheap labor market of Mexico, it is at times almost impossible to hire men to perform ordinary labor, and our mechanics are the most independent in the world.

Our attention was called to this fact by Messrs. A. V. Grosetta and Gus. A. Hoff, of The Tucson Grocery Company, who have evidently had some late experience on the subject, and our own observation confirms theirs.

A Good Bicycle Town.

The superb natural roads in the vicinity of Tucson have caused our people to invest very heavily in the bicycle, and a daily spin of fifteen or twenty miles before breakfast is no unusual performance, even for ladies, as the exertion required is little more than what is necessary to preserve a balance.

In 1895, Messrs. F. E. Russell and M. E. Sheldon formed a copartnership for the purpose of supplying our people with high grade wheels and electric and gas fixtures. Mr. Russell is an expert electrician and has charge of the plant of The Electric Light and Power Company, while Mr. Sheldon is an excellent mechanic.

Must Be Developed.

In publishing interviews for the information of the public, we select only those with people whose facilities for gathering information are above the average. Mr. L. D. Chillson has been in the southwest since 1859. He was the first county surveyor of Pima county and has been a deputy United States mineral surveyor for twenty years.

As city engineer he calls our attention to the fact that Tucson has now eighteen miles of curbed sidewalks and well-graded streets. He believes that our fertile valleys can nearly all be irrigated and produce large crops. We have barely touched our natural resources, having relied entirely upon our own means, but the attraction of our climate will induce those to come here who have the money to develop them.

Astonished—Then Convinced.

The volume of freight movement in Tucson appears to be out of all proportion to the size of the town, until one realizes the large extent of our tributary country. Mr. Geo. E. Kohler has lived in the southwest since 1880, and like others, was at first astonished, then convinced, and decided that Tucson was the most promising place he had seen. He purchased one of the best business corners and erected thereon a large modern block at a cost of $25,000, dividing it into four elegant stores, which were rented to good tenants before they were finished. He occupies the corner store himself with a large stock of furniture, carpets and general house furnishings, and does a good business over all the southern portion of Arizona and into Mexico. All his capital is now invested here, and he feels that it is as safe as if it were in United States bonds, and it is ten times more remunerative.

They Will Dress.

The art of dressing well has reached a high stage, and the ingenuity of designers and weavers is heavily taxed to meet the demand for elegant and tasteful novelties.

This fact is well understood by Mr. W. F. Kitt, whose fashionable dry goods store in the Radulovich block affords a display of fashionable fabrics and millinery rarely met outside of the large cities.

Mr. Kitt has had years of experience and his present prosperity proves that if a man understands what he is doing and does it well, he invariably succeeds.

Home Life Realized.

The comforts of home life are not usually expected by travelers, nor are they ever realized fully, but the Hotel Hall as nearly approaches perfection in this direction as any hotel in the country. It is located near the center of the city and yet far enough from it to avoid all the noise and the bustle of traffic. Miss Anna B. Hall took charge in 1894, and renovated and refurnished the house from top to bottom. Home-cooking is more than a phrase, and the dining room is a model of comfort and good taste. The best of our visitors make this their home, and among them we may mention Col. Summer, U. S. A., post commander Fort Grant; Maj. Chalmers, Washington, D. C.; Prof. True, director experiment stations; Col. J. D. Breathitt, special agent interior department and others equally well known.

HOTEL HALL AND DINING ROOM.

Good Roads.

While the bicycle fad is as great in Tucson as in any place in the country on account of our excellent roads, there is an exhiliaration produced by a good drive that can not be simulated; then, too, a buggy will hold a pair, and if the proper relations exist between them, the ride becomes a dream of ecstasy and an armful of bliss. Neff & Co. make a specialty of providing the public with good horse power to suit the circumstances, and claim that their business is entirely satisfactory. Mining men who require teams for long drives are good patrons, as they know their wants are supplied at short notice. They note an unusual activity in mining matters and express their confidence in the future of Pima county.

He Is Still Here.

In a business directory of Tucson, published in 1878, appears the name of Henry Buehman, photographer, and this gentleman has persistently engaged in the same business ever since. He has not stayed here because he lacked either the enterprise or ability to go elsewhere, but from choice. For twenty-four years he has taken the photographs of our people from youth to age, and the artistic reproduction of all the Tucson babies, who have looked with childish surprise at his camera, has been pronounced by Eastern experts one of the finest examples of photographic art ever produced. Mr. Buehman keeps pace with every improvement in photography, and aided by our wonderful sunlight and clear air, does the finest work in the county. He is interested in mining and ranching, and is prominent in all public matters, having been repeatedly called to occupy official positions of trust and responsibility. He is now serving his second term as mayor of Tucson. Most of the artistic illustrations of this volume are his work, and the publishers are indebted to him for many valuable suggestions in their arrangement. It may be truly said in this case that some may come and some may go, but he stays with us always.

Comfort in the Desert.

The science of dentistry, as now understood, is of comparatively recent origin, having been professionally recognized in 1843. There is every reason to believe, however, that the treatment of the teeth received special attention among the ancient Egyptians, that marvelous people, who appear to have partially anticipated most of our modern discoveries, and George Washington masticated his food for several years with false teeth, clumsily constructed, indeed, but equal to the requirements.

Dr. F. A. Odermatt is a member of the Pacific Dental Congress, that meets in San Francisco this year, and sustains the reputation of our dentists as the most proficient in the world. He has resided in Tucson for the last fifteen years, and been identified with all our progressive movements. His parlors are elaborately provided with the latest modern appliances, and our winter visitors find him so skillful that he reckons many of them among his regular patrons.

He owns a beautiful home, with a large area of garden and orchard surrounding it, a veritable paradise of bloom and verdure, which shows how a man can gather about him a world of comfort and luxury in the "desert."

A Musical Genius.

We have elsewhere referred to our band boys and their leader, but omitted purposely to inform the reader of a circumstance that will astonish him. The talented leader, Mr. Fred. Ronstadt, the self-made musician, of whom we are justly proud, has found time to perfect himself in musical science and instruct the Philharmonic and militia bands while following the prosaic and trying avocation of blacksmith and carriage builder. Two pursuits more antagonistic could not be conceived, and the fact that he neglects neither and excels in both shows, that he is made of the material of which great men are formed.

He Will Surely Die.

Mr. ———— came to Tucson over twenty years ago and engaged in the business of warrant shaving, which proved exceedingly remunerative. He is now well-to-do and willing to lend money at 2 per cent. per month on good security. While he is not opposed to the advancement of Tucson, and believes that it has abundant resources, he thinks that immigration will reduce the rates of interest and make people too independent, and for this reason does not care to assume the responsibility of encouraging it. As he is getting along in years his objections will probably be overruled in the near future, and some more enterprising person will eventually get his money.

Prices are Reasonable.

There are so many of our merchants who started in a small way and have grown up with the country, that a reference to one firm is almost a reference to all. The firm of Wheeler & Perry comes under the rule, and their present large establishment exemplifies most forcibly the conditions that prevail here. They do a large jobbing business in grocery and produce all over the southern country, besides which they handle a fair family trade. The stock they carry would surprise the Eastern country jobber, both as to bulk and quality.

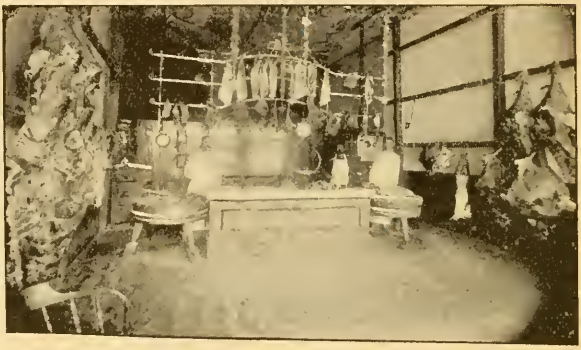
He Made His Money Here.

Prior to the erection of the Radulovich block, there was only one two-story business building in Tucson, and when it was rumored that Mr. L. G. Radulovich intended to erect another at the far end of town, his friends tried to persuade him that it was a wild speculation. He carried out his intention, however, and has made money by it. He occupies one of the stores with a large stock of china, glass and shelf-hardware, displayed in the most tasteful manner. He is a shrewd business man, and having manifested his faith in Tucson by the investment of his capital, we did not feel it necessary to ask him to express it orally.

Meat is Good and Cheap.

The visitor will be surprised to find here such a well-appointed and well-supplied meat market as that of Mr. C. F. Schumacher, who is one of those men whose aggressive energy forces them to the front in everything. Without any political ambition, he has been prominent in political affairs by the will of the people, because whatever the demands of business, public or private, may be, he always finds time to perform them well. His present business is the result of small beginnings, and shows what industry and intelligence accomplish when the field is fair.

In our interview with him he referred to the fact that our meats are not only first-class, but so low in price that Eastern people will find that they can get the best cuts for less than they have been accustomed to pay for the worst grades.



SCHUMACHER'S MEAT MARKET.

Fears Competition.

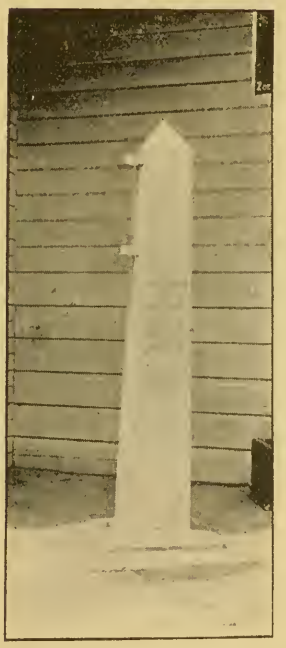
Mr. ———— came here twelve years ago and started a peanut stand, and by unremitting attention to business and sustaining himself on the stale nuts that could not otherwise be disposed of, he began to thrive. Fortune smiled upon him, and as it cost him nothing to live he made a good profit. He increased his stock to meet the demands of trade, and gradually forced his way into the retail grocery business. His frugal habits and careful personal attention to business produced the natural results, and in a few years he became almost wealthy. He fully realizes that the same results can be obtained by others, but he does not believe in encouraging them to come here, as competition will certainly injure his business. He can not, therefore, without prospective injury to himself, encourage any enterprise to induce immigration.

Got It Yet.

Mr. ———— has made lots of money in Tucson and proposes to keep it. When we asked him to subscribe for our book he gave a quiet chuckle and said: "You'll get enough subscriptions for that book without me, and if it does any good, as I suppose it will, I'll get as much benefit from it as my neighbor, and you can't prevent it. Them principles is what I've made my money on, and they're good enough to stay with. You might be doing something better than writing books, anyhow. You can make more money hoeing corn. Look at me! I started life with a dollar bill and what do you suppose I done with it? I've got it yet! If people only saved all they earned they'd have it, wouldn't they? That's the way I've got rich—saving everything. Perhaps I've lost a little health doing it, but what of it? If I die, I'll die rich, anyhow. The people of Tucson don't appreciate a man with money, and I'm only waiting for some fools to improve my property so that I can get a good price for it, then I'll sell it and go East, where a man's bank account counts. I'm not subscribing for nothing—see!"

NOGALES

THE LINE CITY.



INTERNATIONAL MONUMENT.

This monument stands in front of J. T. Brickwood's store in an angle made in the building to admit it. The boundary line between the United States and Mexico passes through the center of the monument from left to right.

From Tucson to Nogales by Stage.

The pleasures of stage travel are better appreciated now than when stages were the only means of conveyance between distant points. Railroads have so gridironed Arizona that there are comparatively few of the old stage lines left, and the old-timers have to depend upon their recollection for the pleasure that is in them.

A stage ride to Nogales is not a necessity, as the journey can be made in almost seven hours by rail, but if the visitor wishes to see something of our back country, our mesas, valleys and mountains, we recommend this trip.

Mr. M. G. Samaniego is the proprietor of the state line and a most accommodating gentleman. The stage is one of the finest and easiest ever built and the driver an interesting relic of the transition period. He has grown old and gray in the service, and can interest you with some stirring tales of the past, if you understand Spanish.

After leaving Tucson you follow the banks of the Santa Cruz river until within ten miles of Nogales, then ascend through fields and orchards to the Line City, and drink in the bracing air of the mountains.

THE LINE CITY.

Nogales is the second city in Pima county with respect to size and importance and the last one founded. It is situated at the summit of the divide in a narrow pass, where the high ranges of mountains that surround it bend abruptly as if to afford facilities for international commerce. With characteristic energy the American city has pressed right up to the international line, while the Mexicans, with customary courtesy, have retired back from it some sixty feet, and this sixty-foot space forms what is known as International street.

The line of railway running from Benson, on the Southern Pacific railroad to the port of Guaymas on the Gulf of California, passes through Nogales and is not only responsible for the town's existence, but has made it the prosperous place we find it to be to-day.

Being a dual city, under different governments, with only an imaginary line separating the two peoples, some conflict of ideas or action might naturally be expected, but as will be seen after reading our interviews with prominent citizens, nothing of the kind exists, but in their stead

the utmost harmony of thought and action prevails. Even the peace officers of the two cities coöperate in the arrest and punishment of offenders on the other side of the street who seek an asylum with them. When the authorities of American Nogales ordained a dog tax and elected a pound master, serious trouble was anticipated, as the Mexicans are extremely partial to dogs. Strange to say, the authorities of Mexican Nogales quietly passed a similar law, the first time in the history of Mexico, and courteously requested that their dog tags be respected in United States territory. As it was not fair to expect dogs to observe the niceties of international treaties it was agreed between the two cities that dog tags should be mutually respected, hence, to-day a registered canine can wag his tail on either side of the line with impunity, while the unlicensed cur is not spared on account of his nationality.

Climate of Nogales.

The elevation is about 4,000 feet above sea-level, and its climate leaves nothing to be desired. During the short rainy seasons it is never damp for more than a few hours at a time, owing to the fact that the town is situated at the highest point of the valley that slopes gently north and south, giving a natural and perfect drainage. The days are moderately warm and the nights cool and refreshing, making it an admirable climate for persons affected with pulmonary diseases. No case has ever been reported that originated in the neighborhood, and all incipient cases have derived marked benefit.

A Serious Difficulty.

One of the peculiar conditions attending life in the dual city is illustrated in the case of the popular railroad agent at Nogales, Mr. P. J. Zeimet. The international boundary line passes diagonally through his office, and when business becomes specially irritating, he does not know which language to swear in appropriately and consequently has to appear to retain his usual evenness of temper.

Mr. Zeimet is brought into daily contact with the Mexican customs officials, and states that no more courteous or accommodating people can be found anywhere. He has been seven years in charge of this office, and has always found them more willing to facilitate international business than to impede it.

We are indebted to the Hon. H. K. Chenoweth, the collector of customs for the district, and his efficient assistants, for valuable information respecting the customs service.

Nogales is the principal port of entry for the district, but there are deputies stationed at Bisbee, Lochiel, Buenos Ayres and Yuma, and it is probable that a station will be established at Tucson in the near future. Besides these officers there are three clerks in the Nogales office, and eighteen subordinates employed as inspectors, guards, etc., at different points on the frontier.

The Customs Service.

Mr. S. M. Aguirre, special deputy, cashier and disbursing agent, is a son of one of the old Spanish settlers, who came originally from the Biscayan provinces. He was educated in one of the best schools in the country, and from a line-rider in 1890 he has been advanced on merit to this present responsible position.

Mr. E. K. Sykes, entry clerk, proved his capacity in several positions of trust and responsibility before entering the customs service, and is the son of Col. C. P. Sykes, one of the most enterprising men in Arizona.

Mr. J. H. Politzer, statistical clerk, is also an Arizonian, and his experience as a business man and accountant admirably fits him for his present position. He is the son of Mr. Politzer, the well-known expert of New York City.

Imports and Exports.

Some idea of the commerce of Nogales may be gathered from a consideration of the following comparative statement of the customs for the fiscal years ending June 30, 1896, and June 30, 1897, not including commodities entered under bond and destined to foreign countries and interior ports of the United States, kindly prepared for us by Mr. Politzer, statistical clerk:

Value of imports, 1897	$3,047,764	Duties, $124,978
Value of imports, 1896	2,603,502	Duties, 85,372
Increase	$ 444,262	Duties, $ 39,606

The average ad valorem rate being 21.42 per cent. for 1897, and 21.89 per cent. for 1896.

Value of exports, 1897	$1,032,414
Value of exports, 1896	941,779
Increase	$ 90,635

Wells, Fargo & Co.'s Agent.

The resident agents of Wells, Fargo & Co. are always the repositories of valuable information respecting the condition of business at their stations. Mr. W. F. Overton, the head of the Nogales office, has been identified with the Southwest for the last fifteen years, and as a quasi-public officer enjoys the respect of the public and the appreciation of his company.

Large industrial operations are being conducted in Sonora, and the future is full of promise. While the official statistics of the entry port of Nogales convey some idea of the Sonora trade, it must be remembered that the port of Guaymas, on the Gulf of California, is the depot of supplies for a large portion of the state, and the value of imports there is not accessible. Large shipments are made by sea from California, and European merchandise is landed in large quantities, the vessels taking return cargoes of high-grade ores and other local products, the rate of transportation being out of all proportion to the distance. It is highly probable that the transfer of the Sonora railway to the Southern Pacific company will throw a large portion of the business now transacted with Europe into the hands of our own merchants, if they have sufficient capital and enterprise to handle it.

The Sonora Trade.

The value of the Sonora trade is conceded in Nogales, and the mining activity in that state fully appreciated, but its real nature and extent is only faintly comprehended. In order to obtain more particular information on this subject for our story, we called upon Mr. Ignacio Bonillas, and to him we are indebted for the substance of this article. He is a member of the American Institute of Mining Engineers, and has been identified with the mining development in Southern Arizona and Sonora for the past fourteen years. He was official engineer for the government for several years, and his reputation for character and ability is of the highest.

The mining industry in Sonora was never more prosperous than at present, and the number and magnitude of the enterprises can be faintly conveyed by the fact that there are over 15,000 men directly engaged in the production of the precious metals. The Minas Prietas alone give employment to about 3,000, and many of the properties are beneficial producers.

The Mexican Mining Code.

As the mining code of Mexico differs materially from our own, we present, for the information of our readers, the following summary of its requirements with respect to the location and possession of mines:

Any person, foreigner or citizen, can locate as many claims, or "pertenencias," as he feels able to handle, each claim being 100 metres square; provided, however, that no foreigner can locate mines

within the Free Zone, or a distance of fifty-two miles from the boundary line, without first obtaining special permission from the government of Mexico.

Having made his locations, he presents a petition to the mining agent of the district in which they are situated, asking that they be adjudged to him in accordance with the provisions of the law. The fees for registry, publication, stamps, etc., should not exceed $12, but are generally thrice this amount, the official schedule being adjusted to suit the climate. If the petition is admitted, as it usually is upon payment of the fees, it is regularly filed for registry, and within three days thereafter an order of survey is issued.

Theoretically, any competent engineer can be selected to make the survey, but as the question of competency may cause complications, it is better to accept the party recommended by the district agent. When the survey is returned the agent makes an extract from the registry and causes it to be published in the official paper of the state, citing adverse claimants to appear and show cause, as in the case of United States patents.

At the end of four months it is the duty of the agent to forward to the federal department of public works a transcript of all proceedings, and if these are found to be regular, and the stamp duty of $10 for each claim is forthcoming, a title is issued.

The cost of surveying is generally $15 for each claim, when there are many, the minimum cost of a survey being $100, but this expense is affected by distance and other variable conditions. .

The only limitations to the absolute ownership of mines is an obligation to pay an annual tax to the federal government of $10 per annum on each claim, payable every four months. If this is not paid promptly, a maximum extension of three months is granted on payment of fines of 25, 50 and 100 per cent. additional for each month respectively, and a complete failure is held to be an abandonment of the property, which then reverts to the public domain.

The state government collects a maximum tax of 2 per cent. on the gross product of mines (which can be avoided by letting them lie idle), and $6 per $1,000 on the assessed value of improvements. The assessment is made by an official expert appointed for each district, and is usually very fair to mine owners.

The Hon. G. A. Avery, mayor of Nogales, is also one of its pioneer merchants, having erected the first building of any importance on the west side of the railroad track. He is engaged in the furniture business, but finds time to devote to public affairs. He was on the board of county supervisors four years, and for over three years a member of the Nogales city council. We are indebted to him for the following valuable information respecting the Line City:

Nogales in Brief.

He estimates the population of American Nogales at 2,000, and the Mexican side has about an equal number.

About twenty new and modern buildings have been erected during the past year, and an equal number across the line. The Mexicans appear indisposed to let us beat them in progressiveness, and frequently set the pace. The advantages of Nogales as a summer resort are beginning to be appreciated by the people living on the lowlands of Sonora, where the summer heat is almost unbearable, and many of the best families of Hermosillo and Guaymas intend to erect residences here as places of refuge. There is no question but that a fine, commodious hotel erected in the vicinity of Nogales would be liberally patronized by the *Sonorenses*, and as the guests would all be in good circumstances, the enterprise would pay.

The city has spent on the streets, during the year, about $3,500, and extensive grading is still in progress.

The volunteer fire department is well equipped with a high-pressure engine, costing $1,500, and a good hose reel.

The city tax is 5 mills only, and there is no bonded or other indebtedness.

It is one of the most peaceful settlements in the country, the police force consisting of a city marshal and one assistant, and these have very little to do.

The relations between the municipal bodies of both cities are extremely cordial, the Mexicans promptly adopting every one of our ordinances designed to maintain order or promote the welfare of the municipality.

The peace officers of both cities appear to have a private understanding between them, and when an offender seeks immunity from arrest on the other side of the line, he is quickly pushed back across the street within easy reaching distance.

There are neither paupers nor tramps, and every industrious man readily finds a reward for his exertions.

The city contemplates the erection of a fine city hall and engine house, and a new opera house will probably be opened in the lower portion of the new Masonic Temple.

The business outlook is very encouraging, and business has more than doubled in volume since the commencement of the year. The mining activity in the state of Sonora, Mexico, is almost incredible, and there are several fine properties being operated in the vicinity of Nogales.

Business is generally done on a cash basis, and credit is seldom solicited.

The titles to city property have heretofore been uncertain, owing to the cloud cast upon them by the alleged Nogales Land Grant, but now that this has been set aside by our courts, a patent to the townsite will be given by the government and ownership confirmed.

Nogales has an excellent telephone system, electric light and water works and ice plant.

The water company is now making improvements in its service that will enable it to furnish an abundant supply of pure water at a high pressure.

A sewerage system is also contemplated, but there is no immediate necessity for this, as our natural drainage is almost perfect.

Our principal fuel is wood, procured in the neighborhood, and consists of oak, mesquite, walnut and cedar. It is delivered in the city at the rate of $2.75 per cord.

All business is transacted on the basis of the Mexican dollar, which passes current among us in small amounts at the rate of 50 cents, or two for one of ours. This gives our merchants considerable trouble, as the rate of exchange varies, but it would be impossible for them to do business on any other basis.

Societies and Churches.

Nogales Lodge No. 11, F. and A. M., has an active membership of about fifty, and meets the third Saturday of each month. The present officers are: J. Dessart, W. M.; Chas. Montague, secretary, and W. N. Cummings, treasurer.

The Masonic Association of Nogales is an organization in charge of the erection of the new Masonic Temple, which, though now in use, will not be dedicated until the 17th of September, 1897. The officers are: J. Dessart, president; Geo. Montague, secretary, and W. N. Cummings, treasurer.

Nogales Lodge No. 2, A. O. U. W., has been established only eighteen months, and has now a membership of about fifty. It meets every Friday evening, and the officers are: F. J. Duffy, M. W.; S. M. Aguirre, recorder, and F. M. King, financier.

Nogales Lodge No. 13, K. of P., meets the first and third Tuesdays of each month, and has an active membership of seventy-five. The officers are:

A. A. Doherty, C. C.; T. F. Broderick, V. C.; Eb. Williams, K. of R. and S., and J. B. Mix, M. of E.

Nogales Lodge No. 9, I. O. O. F., meets every Thursday and has a membership of thirty-eight. The officers are: R. H. Clark, N. G.; Eb. Williams, secretary, and J. Dessart, treasurer.

Manzanita Lodge No 6, O. of Rebecca, has a membership of twenty-seven, and is becoming very popular. The officers are: Jane Williams, D. D. G. M.; Amy Pierson, N. G.; Prudence Cummings, V. G.; Emma Walker, secretary, and Clara Holler, treasurer.

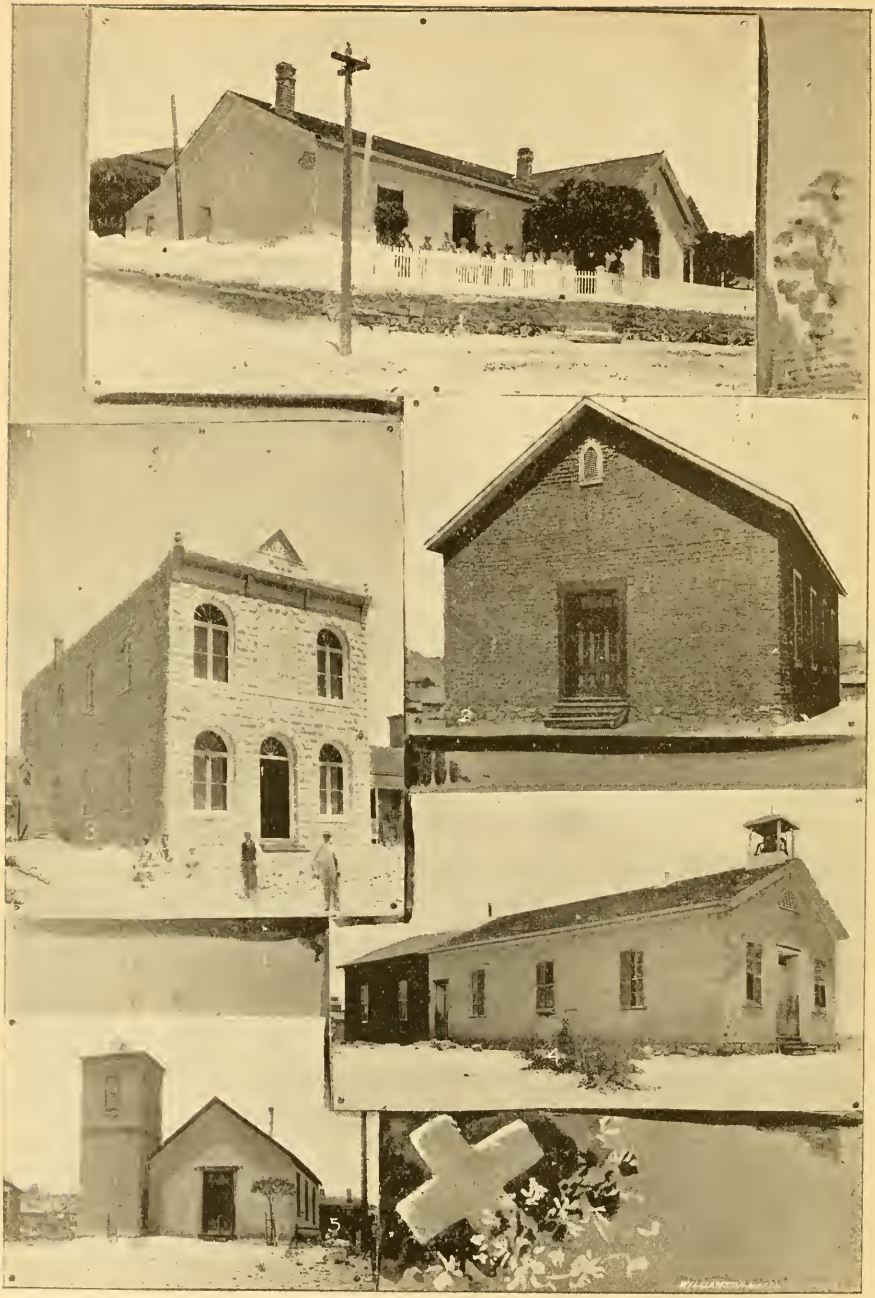
The Spanish-American Alliance is represented by Lodge No. 6, organized May 16, 1897. It has a membership of fifty, and the present officers are: R. A. Moreno, president; Ygn. Escalada, V. P.; Juan Franco, secretary, and F. A. Moreno, treasurer.

We heard of a *Lodge of Good Templars*, but could not find any one who was willing to acknowledge an active membership.

There are three churches in Nogales, and we are indebted to the pastors of two for the information given below.

The Catholic Church, a modest but comfortable building, is well patronized, notwithstanding the fact that there is a church of the same faith on the other side of the line.

1. T. F. Broderick, Marshal. 2. Capt. J. J. Noon, Councilman. 3. F. J. Duffy, Justice of Peace.
4. G. A. Avery, Mayor. 5. S. M. Aguirre, Chief Customs Clerk.
6. J. T. Brickwood, Councilman. 7. H. K. Chenoweth, Collector of Customs.



1. U. S. Custom House. 2. Methodist Church. 3. Masonic Temple.
4. Public School. 5. Congregational Church.

The Methodist Episcopal Church (South) entered this field about ten years ago by establishing a school, which has since developed into the Nogales seminary, with an enrollment of 180 pupils. A church building of fair proportions was erected later and has had a successful career. The congregation averages forty, and regular services are maintained throughout the year. The Sunday school is well attended, and the pastor, Rev. S. V. Dilley, is hopeful of the future.

There is a Mexican branch of this denomination, in charge of Rev. E. Quinones, with a membership of sixty. The services are conducted in a separate building and in the Spanish language.

Trinity Congregational Church was established in 1887, and has an average attendance of thirty-five. Regular services are held throughout the year. There is a Sunday school in connection with the church, with an average attendance of twenty-five, and the auxiliary bodies are well represented by the Christian Endeavor society, the Y. P. S. C. E., and Ladies' mission. The present pastor, Rev. J. H. Heald, has been in charge five years, and notes a marked improvement in the moral tone of the community. In addition to local work, he visits Calabasas and Crittenden. The church building is substantial, and attached to it is a comfortable parsonage, a gift from the former pastor, Rev. R. T. Liston.

RESIDENCES: 1. Mexican Consul. 2. L. W. Mix. 3. F. Herrera. 4. J. Dessart. 5. W. N. Cummings.

1. Lumber Yard, Roy & Titcomb. 2. Theo. Gebler. 3. F. M. King. 4. Electric Light & P. Co.
5. Chenoweth & Mix Drug Store. 6. Office Wells, Fargo & Co. 7. Offices Roy & Titcomb.

The Public School.

Dr. A. A. Doherty, the pioneer dentist of this section, is also a school trustee, and to him we are indebted for the following information respecting the public schools of Nogales.

Three trustees are elected, as elsewhere in Arizona, and the present board consists of H. K. Chenoweth, J. B. Mix and A. A. Doherty.

The school building, situated in an elevated part of the city, is a substantial edifice, furnished with all modern appliances, including improved seating arrangements and a library. There are three class rooms in charge respectively of Prof. T. F. Grindell, principal, and the Misses Theo. Sprecher and Ada EKey, first and second assistants. The number of children in the district of school age is 432, but owing to lack of accommodation the attendance is not as large as it should be. The term is generally of nine months' duration, and during this period every seat is filled.

Dr. Doherty is a close observer and pins his faith to the Line City. It has a good tributary country and the trade with Mexico is increasing steadily. Speaking of the effect of the wonderful climate he instanced a Mexican couple residing in Nogales who have twenty-seven children all living, which is the largest crop recorded up to date.

Fire Risk.

We are indebted to Mr. A. J. Griswold, clerk of the city council, for valuable information on many matters. Mr. Griswold is an expert accountant and insurance agent and was formerly agent here for Wells, Fargo & Co. He informs us that there have been only two fires in Nogales in six years, and these were purely accidental, hence the rate of insurance is low, not exceeding 1 per cent. The buildings now being erected are all of brick or stone and consequently nearly fire proof.

Newspapers.

There are two newspapers published in Nogales, both of them in the English language and issued weekly.

The *Oasis* was originally started by its present editor and proprietor, Mr. Allen T. Bird, at Arizola, a boom town near Casa Grande, on the Southern Pacific railroad, sixty miles west of Tucson. When the boom collapsed, Mr. Bird moved his outfit to Benson, forty-five miles east of Tucson, but after trying to infuse vitality into the place for a short time, located permanently in Nogales. He gives the public a newsy sheet with a neat typographical appearance.

The *Vidette* originated in Nogales in 1894, the editor being the late Harry M. Wood, an old newspaper man from Tombstone. He was succeeded by Frank M. King, the present proprietor, who was followed by the late George Webb. Mr. King resumed charge on March 15, 1897, and has made it one of the brightest papers in Arizona. It has twenty-four columns of matter, printed on fine book-paper, and presents a neat typographical appearance. No boiler plate defaces its pages and its articles are always well written and entertaining. It is a favorite advertising medium and has a large local patronage.

Both these journals do credit to the town and deserve general support.

Opportunities for Enterprise.

Nogales is a virgin field for industrial enterprises, and the time is not far distant when it will be necessary to establish manufactories at this point to supply the increasing needs of northwestern Mexico. In addition to the great saving in freight, intelligent labor is cheaper here than in any part of the United States, and the opening up of the Sonora coal fields will furnish abundant fuel at low cost. Beef cattle, now exported by the thousand to the East, should be converted into canned meats on the spot, the hog-raising industry could

be stimulated and lard, soap and candles manufactured here. All these products are imported by the carload to supply the demands of Sonora. A flour mill located at Calabasas would be profitable, and a good-sized brewery would be kept in active operation.

There is an excellent opening for a good national bank with a capital of, say, $50,000. After it secured the confidence of the people it would become the depository for the surplus wealth of Sonora, which is considerable. At present there is no bank of deposit at Nogales of any importance, the exchange business being generally transacted by leading merchants and one or two money brokers.

As the town can only grow down the valley, real estate speculators might find it profitable to control available building sites in that direction; some of these are admirably situated and control valuable water supplies. A few years hence it will cost thousands of dollars to accomplish what can be done now with a few hundreds.

On the whole, the writer feels that next to Tucson, Nogales presents more and better opportunities than any town in the West.

Captain Noon's Orchard.

Another Opportunity.

It has been said of some of our old pioneers that the only way they can terminate their existence is to try to live back East or commit suicide. Capt. J. J. Noon, chairman of the finance committee of the town council, is touching his seventieth year and is hale and hearty and more enterprising, perhaps, than many a youth of thirty. He landed in California in 1850 and experienced the usual vicissitudes during the years he mined in the Golden state, Nevada, Utah, Idaho and Arizona. He was the original discoverer of the famous St. Patrick mine in the Pajaritos mountains, which he sold for $20,000, and out of which the purchasers netted $150,000 the first sixty days.

He settled in Nogales about nine years ago and took up eighty acres on the north side of the city. Part of this is subdivided and known as Noon's addition. Of the balance, he planted eight acres in fruit trees, which are now in full bearing, and form a beauty spot in the scenery. The pressure of the city is bearing down upon the captain's reserve of fifty acres, including the orchard, and he will be compelled to enlarge Noon's addition by the the addition to it of the balance of his property. It is the finest residence site in the city, conveniently located, easily graded and with a fine quarry of excellent building stone on one side

that will supply enough material to cover the whole acreage with buildings. If we had the money we would try to buy the captain out and double our money in two years from half the property.

A Disappointed Man.

Some years ago, the correspondent of an Eastern journal discovered a man in an Arizona town who filled every office it was entitled to, and wrote the matter up as an extraordinary circumstance. He failed, however, to draw the obvious moral that if one person was able to fill all the offices, there could be little to do in any of them. This concentration of responsibility is really a very common occurrence in Arizona, and even in a town like Nogales we find that Mr. T. F. Broderick is able to be city marshal, deputy sheriff, deputy United States marshal and constable, and still has time to attend to his own business.

He notes that there has been no serious infringement of the law in four years, the principal cases being misdemeanors. The lower class Mexicans across the line sometimes imbibe too freely of bad *mescal* and tumble out of their own country into ours. If they are caught before they lurch back again they become Mr. Broderick's prey and swell the annals of crime. If it were not for occasional accidents of this kind, time would hang so heavily on his hands that he would be compelled to run for some more offices.

He has only been in Arizona a few years and is disappointed in it. He feels that he had a right to expect more occupation, and suggests the advisability of importing a few desperadoes from the East, in order to give our peace officers some decent entertainment.

A New Industry.

The upper portion of the Santa Cruz valley is admirably adapted to the raising of a fine grade of tobacco, and the farmers will now give their attention to this product, in view of the establishment at Nogales of a cigar and cigarette factory. It is only within the last month that Fleischer & Varona began the manufacture of Mexican cigars from the best grades of Vera Cruz tobacco, and the brand of "Las Dos Naciones" is already widely known. Mr. Varona was originally with Kohlberg Bros., of El Paso, whose "International" brand of Mexican cigars is known all over the country, and to his skill must be attributed the reputation they have made. The climatic conditions at Nogales are more favorable to the manufacture, and the Dos Naciones brand will take precedence of all others as soon as its merits become known to smokers. None but the finest grades of Vera Cruz tobacco are used, and the cigars have all the best qualities of the imported article, in addition to an elegance of appearance that adds to their value in the eyes of connoisseurs. The adaptability of the local tobacco to the manufacture of cigarettes has been proven, and as soon as a sufficient quantity is supplied, it will be used for a line of cigarettes that will compete successfully with the Eastern article. Fleischer & Varona at present employ twenty hands, but this number will be doubled next month. The success of their enterprise has been beyond their expectations, and the reputation of their factory has outrun their ability to keep up with the demand.

No Trouble at all.

Some years ago the writer visited the principal Eastern manufacturers in the interest of an enterprise designed to develop our trade relations with Mexico, and found that the custom house was the bug-bear of commerce.

Since then custom house brokerage has been recognized as a profession on both sides of the line, and those who engage in it have to be both competent and responsible. The entry of merchandise into Mexico is to-day attended with less difficulty than entries into the United States. For the Mexican side there are a number of skilled brokers, but the recognized broker in American Nogales is Judge Frank M. Duffy, to whom the principal business men confide their business.

Among the many pleasant people we met in Nogales was Mr. W. N. Cummings, the real estate and money broker. He is in close touch with the pulsations of business and prominent and active in all that tends to promote the welfare of the community. He is a charter member of Nogales Lodge, I. O. O. F., and as a member of the Masonic fraternity has been instrumental in crowning the local lodge with the undying honor of being the first in Arizona to build its own temple. He came to Nogales eleven years ago and invested heavily in real estate. At the present time all his houses are filled with good tenants and he could rent twenty-five more if he had them. Many new buildings are in course of erection on both sides of the line, but the demand always exceeds the supply. A better class of people is being added to our population and the future of the city looks flattering.

It is No Boom.

He is very much interested in the cause of higher education and believes that if a good commercial college were established here it would be well patronized by the youth of Sonora, who are now sent to the Eastern states and Europe.

While the *Building and Loan Association* of Nogales has been of some assistance in building up the town, it is not so well patronized as it should be, the monthly income not exceeding $600, which means perhaps four buildings a year.

Four Tons to the Acre.

Mr. Geo. W. Atkinson was one of the original settlers at Calabasas, near Nogales, reaching there in 1879. He has a fine farm and cattle range and was, until lately, associated with L. Zeckendorf & Co. in their extensive cattle-dealing operations. He was the pioneer potato cultivator of Arizona, and instances a crop of 8,000 pounds to the acre raised in the Santa Cruz valley and marketed chiefly in Tucson. George tells an excellent story about himself that is worth repeating: In the early part of January, 1879, he called at Pete Kitchen's ranch, five miles north of Nogales, and not finding Pete there, left a note and started to return to Calabasas. While yet in sight of the ranch he was halted by five Mexican robbers, who relieved him of all his valuables and surplus clothing. Then they led him off the road and kept him prisoner until it was dark. When released he made direct for his ranch at Calabasas, and found there a party on the way to Sonora with a large amount of money, who, after hearing the story of his adventure, decided to give up their journey and return home. Atkinson was very much disgusted with his adventure, and, as the nearest supply point then was Tucson, he proceeded thither to secure a new outfit of clothing and a gun with which to defend himself if again attacked. A few weeks after his return, while working about his house, he saw five Mexicans approaching, and sent his man with the gun to investigate them. They eluded the messenger, however, and pounced upon George just as he recognized them as the same bandits that had robbed him. The man was surprised in a similar manner and led off out of sight. After compelling him to cook them a good dinner, they expressed great pleasure at meeting him again, and suggested that he contribute at least $500 to the common fund. When he declared that his resources did not exceed $30 they appeared incredulous and insisted upon putting a noose about his neck and hauling him up to a beam several times. As this game of neck-stretching failed to produce the desired result, they accepted the $30 and whatever else was convenient and useful to them, and left. For a long time after this visitors to the Atkinson ranch had to bring strong letters of recommendation or go somewhere else.

Hit Twice in the Same Spot.

The Youngest Pioneer.

The Hon. John T. Brickwood claims to be the youngest living man who voluntarily came to Arizona and remained here permanently. As this challenge excludes people who were born here, we award him the medal for being the youngest pioneer. He first landed here in 1867, and after mining and storekeeping in different parts of the territory settled in Nogales in 1882. The future city was then nothing but a line of tents along the flat, and the only storekeepers were Isaacson, Elliott and Downer and D. Snyder. He began business just south of the present site of the Montezuma hotel, opposite the old railroad depot. A couple of years later he built his present place of business around the international monument, and the south line of the building coincides with the boundary line between the United States and Mexico. In order to accommodate the monument an angle was made in the wall.

Mr. Brickwood's record as a public-spirited citizen is proclaimed in the fact that he is now serving his second term as a member of the city council.

BEATING THE CUSTOMS.

Beating the Customs.

One of the economical results of building right on the line is shown in his arrangement for supplying his customers with Mexican cigars without paying tribute to Uncle Sam. As anything beyond the line of his wall is in Mexico, including, perhaps, the paint, when a customer desires a foreign weed, he just steps outside into the next country and opens a case attached to the wall, the customer following and placing at least one foot over the door step, and the international difficulty is adjusted. An accompanying illustration shows how the trick is done, and this is the only spot in the world where it is possible to do it.

The Sole Survivor.

In Nogales we grasped the hand of the only living active participant in the historical events which took place in San Francisco in 1856. Mr. Theo. Gebler, the pioneer hardware merchant of Nogales, was a member of company 26 at the time the Vigilance Committee passed upon the cases of Cory, Casey, Helherington and Bliss, and often stood guard before Judge Terry's door. He is also, so far as he knows, the only living eye-witness of the celebrated duel between the Judge and Senator Broderick. Though years have whitened his head he has never lost his pioneering instincts, and cast in his lot with the founders of the Line City twelve years ago. He has been a member of the council since the town's incorporation, and is always as foremost in public spirit as he is in business enterprise. He is assisted in his business by his son, Oscar, who bids fair to follow in his father's footsteps and maintain in eternal green the honored name he bears.

The Southern Pacific Company.

While on the subject of commerce, we take pleasure in presenting the reader with the following brief summary of the consensus of opinion of the merchants of Nogales respecting the transfer of the ownership of the Sonora railway. While some held views contrary to those here expressed, the majority agreed with them, and even the objectors conceded that they were probably correct:

The Southern Pacific company has unlimited resources, is controlled by able men, and while its policy may be selfish, its service is generally efficient. Every department of the road will be improved or renovated, to the advantage of travelers and shippers; it will become an integral part of a great continental system, with proportional rates of freights and fares, and cease to conduct a predatory warfare against foreign lines. Of course the Southern Pacific company may bring some pressure to bear on our merchants to force them into the markets it controls, but the question of market is not material if other things are equal. The merchant is most interested in the volume of his trade and the profit in it. It is probable that our merchants will be restricted to certain territory and will not be permitted to ship to Tucson or Yuma, but, on the other hand, they will be maintained in their own domain against all competition. We do not believe that the Southern Pacific company will make Guaymas a distributing point, for the reason that it is not to their interest to do so. There is no doubt a line of steamers will be put on to handle the coffee trade of Central America through Guaymas, and the tea trade of the Orient, but these are transcontinental matters and do not directly affect us. The shops will certainly be removed from Guaymas to this point, as this is an economical necessity. If the Sonora coal fields are as good as represented, the Southern Pacific company will take an active interest in their development, and this consideration opens up a pleasant vista of manufacturing possibilities.

On the whole, we see in the change nothing to decrease the present growing trade with Sonora, and much to encourage us to hope for a brighter future for it.

The Militia.

Nogales is responsible for company "G," N. G. of Arizona, which we hope will never be called upon to distinguish itself in any international conflict. The boys have fairly mastered the tactics and manual-at-arms. We saw them salute the flag on the Fourth of July, and they made a martial noise that must have been exhilarating to old soldiers. We afterwards saw them attack the refreshments provided for them at the custom house, and the charge they made was frightful to behold, and thoroughly demoralized the enemy. The officers are: Will EKey, captain; Rich. Fleischer, first lieutenant; T. F. Broderick, first sergeant.

DEPARTMENTS, STORE OF J. PASCHOLY COMPANY.

They Set the Pace.

In order to succeed in the Southwest a man must have fertility of resource and indefatigable energy, so that if one assault at fortune fails, another is attempted, and so on until the citadel is won.

A fair sample of the right material is Mr. Jos. Pascholy, the merchant prince of Nogales, who laughingly boasts that he has been "broke" half a dozen times. He was one of the pioneer business men of Tombstone and stayed with the old camp until hope was gone. In 1891 he came to Nogales with a large capital of energy and a limited supply of cash. His credit was good, however, and true to his character he began on top, and overcoming odds that would have appalled another man, not only stayed there but set the pace for others.

The large department store of the Jos. Pascholy Company is the most imposing block in town, 50x155 feet, and a dozen men are employed. Their importations exceed six carloads a month, and the wholesale trade with Sonora is almost half of all that is transacted from Nogales. The firm has exclusive control of several important mining camps in Sonora.

Judge Taylor, the office manager of the firm, is also an old Tombstone business man, who adds a long Western experience to a strong natural ability.

The accompanying illustrations showing the Pascholy establishment speak plainer than words of the enterprise of the firm.

Oratory.

The days of oratory are supposed by many to have passed away, but a good, rattling speech, full of point and music, is still appreciated, and the race of orators has not been extinguished, but merely reduced in numbers. We require that if a speaker has aught to say, he shall speak with precision and brevity, and this has driven long-winded orators out of the business.

Judge Eb. Williams, of Nogales, has achieved fame as an orator by not striving for it. We are indebted to him for valuable information respecting the fraternal organizations of Nogales, as well as for much courteous attention. His reputation as an able speaker in both English and Spanish has long been known to us, and a personal acquaintance impressed us with his real merit. He has been fifteen years in Arizona and always active in public duties.

THE MONTEZUMA HOTEL.

HOTEL GARDEN.

Elsewhere in this volume we give some reminiscenses obtained from Col. Bob. Williams, the proprietor of the Montezuma hotel, Nogales.

Fair and Good.

After Pinal was abandoned Bob moved to Florence, and opened a hotel, which he ran successfully for five years. When he was burnt out he looked for another location, finding it in Nogales.

The Montezuma is a three-story stone building of imposing appearance, with forty-five rooms elegantly furnished and well-ventilated. It faces the city park, with another park of its own in the rear, and is lighted with electricity. There is a neat parlor and two sample rooms, and in connection with the hotel, but separated from it, is the best restaurant in Nogales.

Bob is a typical Arizonian, generous to a fault with his friends, but strong in his antipathy to anything mean. None but people of the best class are permitted to become his guests and these invariably become his friends. He has a faithful and efficient coadjutor in his estimable wife, and the visitors at the Montezuma are always assured of fair treatment and good company.

This hotel is the only first class hostelry in the city, although furnished rooms can be obtained at reasonable rates. There are a number of good restaurants and prices are generally low. In the winter months the tables are well supplied with oysters and fresh fish from the bay of Guaymas.

A Skilled Electrician.

The quality of the air in this region is illustrated by the fact that in operating the long-distance telephone between Nogales and Duquesne, a distance of twenty miles, the slightest whisper can be heard.

The construction of this line is the work of Mr. W. B. Welton, who is a skilled electrician, located at Nogales. He finds abundant occupation in Sonora, Mexico, whose people are prompt to avail themselves of the latest scientific discoveries. The use of the electric light in mining operations is growing in favor, and at present Mr. Welton it setting up a plant for a mining company near Arispe, and this class of work will engage a great deal of his attention in the future.

ONKA'S LEAP

AN INDIAN LEGEND OF THE SANTA CATALINAS.

A few miles from Tucson, at the point of the Santa Catalina mountains, rises a jagged peak, which some convulsion of nature has rent from the parent range; and upon a narrow ridge running from the base of this peak are the ruins of an ancient settlement of the primitive race. Below the ruins, at the distance of a mile, the ridge terminates in a cliff, which rises sheer 100 feet or more from the rocky bottom of a gulch. This cliff is known as Onka's Leap, and the following is the origin of the name, as told by the Pima sages:

It was a fearful night; black darkness overspread the land; the muttering thunder and the vengeful lightning shook the murky air, but the mad frenzy of the elements was soft repose compared with the tempest of angry and vengeful passions that tore the soul of a lonely old *ve-koi* (grandmother) who sat amid the ruins of what had lately been the happy homes of her kindred.

"Why," she cried, as she beat her shriveled breast and tore out big handsful of her scraggy hair, "why strikes not the great *Tas* (sun god) their savage hearts! Surely the dark *Hauk* (night demon) is awake this cursed night! Alas, not one of my people have they spared! Why am I left if not that I may throw curses at the backs of the murderers!"

Even while she cursed until the weary breath rattled in her throat, a heavy hand fell upon her shoulder, and a hoarse voice roared in her ear, "Ve-koi!"

She turned, and by the lightning's lurid glare recognized the leader of the band whose hands were red with the blood of her people.

"Yes, yes!" she shrieked, "I have cursed ye till my voice is choked! Now take my worthless life as you have taken theirs, and let my spirit be with them. Onka is ready!" and she lowered her head for the expected blow.

"Peace!" yelled the savage, "we seek not your miserable life, but to preserve our own. Live to tell the miserable *aka-ma-lootum* (river men) of our hate and vengeance. We are in haste to reach our homes beyond the great *Ka-cut* (Superstition mountains), and can not find the trail out of these cursed hills. The *Ve-koi* will show us the path!"

"Conduct you to safety that you may desolate other homes? Never!" Then as the sinewy hand of the savage grasped her throat, another thought came to her, and she said, "I will go."

Among the boulders and hummocks Onka led the ghostly procession, while the thunder pealed and the lightning crashed among the peaks, and the torrents came hurtling down the mountain side. For a space she proceeded with hurried gait, then paused under a sturdy oak

whose arms waved like reeds under the influence of the storm. She appeared to reflect as to what direction to take, and while she hesitated, there came a lull in the storm which only intensified the darkness.

If the savages could have seen her face as she started off again their suspicions would have been aroused by the smile that overspread her features and the exulting glitter of her eyes. But the darkness was so intense that they saw nothing and struggled along behind her in single file, their eyes blinded by the pelting storm and their ears deafened with the roar of the tempest.

When she approached the edge of the precipice she stopped and cautiously stepped aside. Her trusting followers moved on, one after the other, down into the deep and fatal abyss, whence no wail of despair or death rose above the voice of the storm god.

As her last foe perished, a flash of lightning leapt from the darkness and bathed the scene in lurid light.

Onka gave a yell of hellish triumph.

"Not yet, not yet will I leave them! The spirit of *Onka* shall follow to taunt them!" and with a mad leap she followed her victims.

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